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## TSINAN

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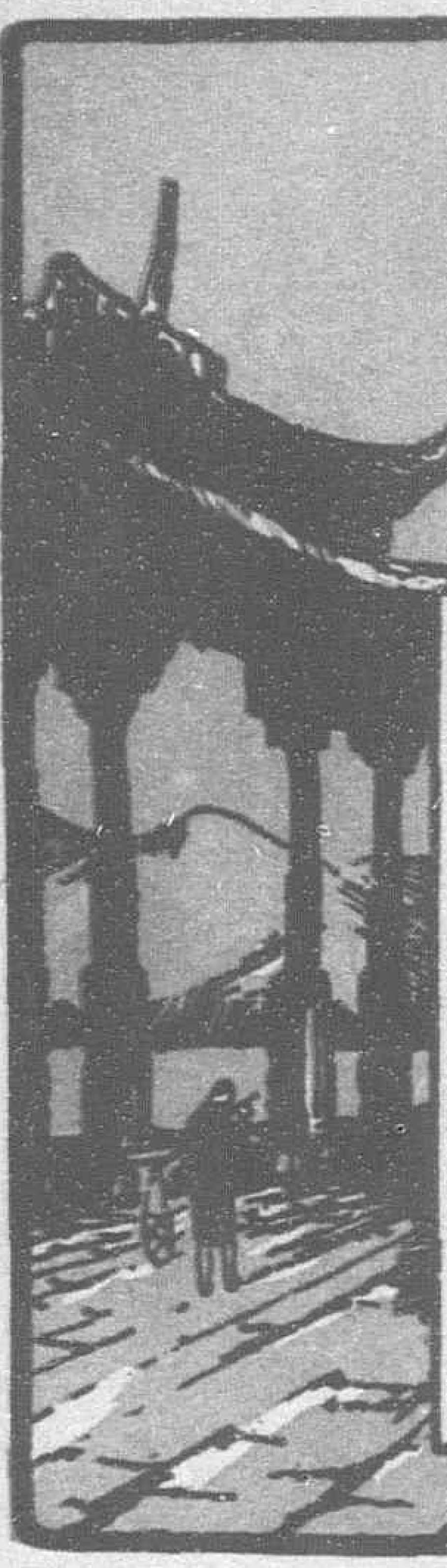
SHANGHAI, PEKING, TOKYO AND MANILA



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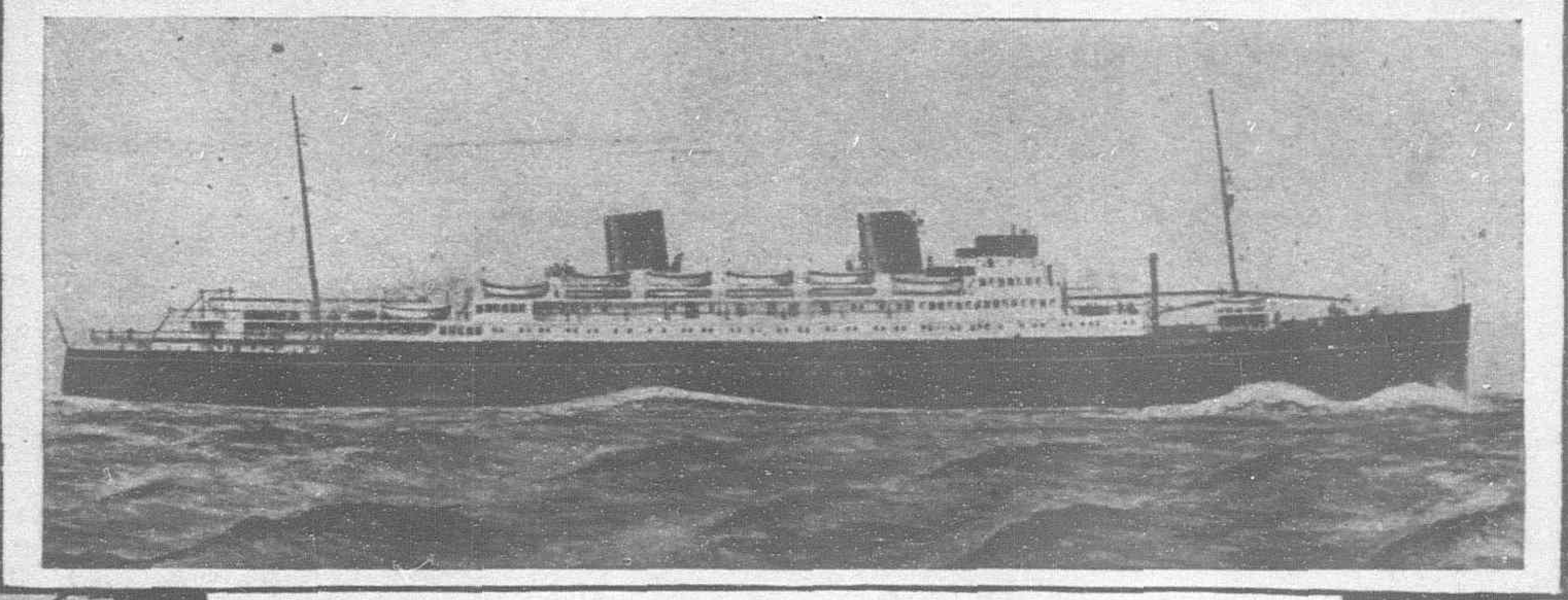

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The Far Eastern Review

ENGINEERING FINANCE COMMERCE

VOL. XXIV SHANGHAI, MAY, 1928 No. 5

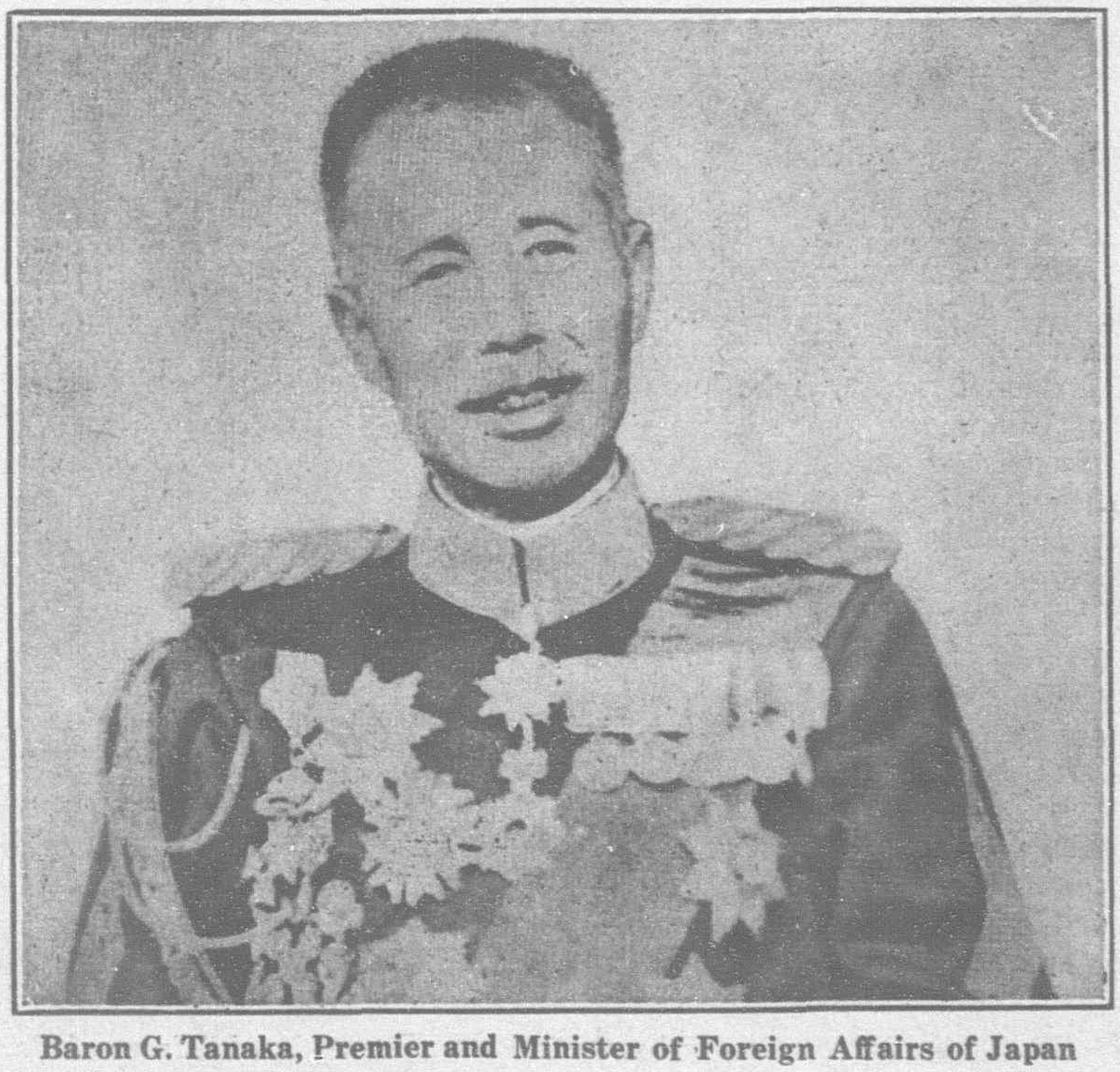
# TSINAN

## Sino-Japanese Clash in Shantung Province; Japan Sends Troops to Protect Life and Property; China's Case Spoiled by Minister of Foreign Affairs

## A Documented Statement of the Incident

THE Tsinan Incident, which will loom largely during the next year in Asiatic relations, does not present as startling a problem as it might have had not the Nationalist troops on their march from Canton to Peking committed violence upon foreign properties and lives in the principal cities which they occupied. It cannot be forgotten that in January, 1927, a Nationalist mob seized and occupied the British Concession in Hankow; similarly, they seized and occupied the British Concession in Kiukiang. The Nanking Outrage in the following March has not yet been fogotten. On this occasion, British and American gunboats were forced to set up a barrage around Socony Hill in Nanking for the purpose of saving the lives of their nationals who were concentrated there. The foreign property, which was looted and seized in Nanking during this occupation, has not yet been returned to the foreigners nor has any compensation been made to those who have suffered. It is true that the American Government has exchanged Notes with the Nanking Government concerning the Nanking Outrage* and it is true that the Minister of Foreign Affairs of the Nationalist Government, Mr. Huang Fu, paid $100,000 " bargain money " to the American Government to guarantee that he would carry through the terms of this exchange of Notes with regard to reparation. Nevertheless, the terms of the Notes have not been complied with and the Reparation Committee which should have been appointed by now, has not yet been appointed.

There can be no question that an uprising was anticipated in Shanghai in March and no one can forget the military activities of the foreign defence forces here, the barricades and barbed wire entanglements which were erected to save Shanghai from looting and to save the lives of the foreigners who dwell in that city. In view, then, of the past performances of the Nationalist troops, it was to be assumed that the Japanese, whose interests are so enormous in the province of Shantung, would take steps to protect the lives and the property of their nationals there.



Baron G. Tanaka, Premier and Minister of Foreign Affairs of Japan

It will be remembered that Tsingtao and the German possessions in Shantung were taken over by the Japanese during the Great War. The Japanese developed the German possessions and concessions, managed the Shantung railroad efficiently and made Tsingtao one of the principal ports of China. As a result of the Washington Conference, Japan voluntarily entered into negotiations with China for the retrocession of her possessions in Shantung. There were protracted negotiations, as a result of which such property as the Japanese Government held in Shantung was returned to China under conditions stipulated in the treaties. Japanese private enterprise continued, the amount involved at the present time being approximately Y.200,000,000. Large numbers of Japanese remained in Shantung.

Previous to the retrocession of Shantung the relations between China and Japan were strained, but after this event an era of good feeling seemed to have been entered upon, which continued with slight interruption to the beginning of May. During the anti-British boycott of 1925 and 1926, the Nationalist Government was particularly friendly to the Japanese and cultivated cordial relations. General Chiang Kai-shek, Commander-in-Chief of the Nationalist Armies, was a graduate of a Japanese military Academy.

### Japanese-Nationalist Negotiations

Previous to the present Northern Expedition of the Nationalist Armies it was freely reported that Mr. Huang Fu, Minister of Foreign Affairs of the Nationalist Government, had entered upon an arrangement with Japan that they should send only 300 troops to Shantung.

In an interview published in The *North-China Daily News* on March 8, Mr. Huang Fu said :—

" Only yesterday I was discussing with General Chiang Kai-shek various matters in connection with the Northern Expedition. If Japan, at the moment of our positive advance into Shantung, refrains from despatching troops there, *or only sends a small number of soldiers and remains true to her spirit of merely protecting Japanese subjects in Shantung* and not being an obstacle to the movement of the Northern Expeditionary Forces, then her attitude can manifest itself, and therefore, the Nationalist Government, as well as the entire Chinese people, can

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*See April Issue of the *Far Eastern Review* for all texts.

General Chiang Kai-shek, Commander-in-Chief of the Nationalist Armies

assume a new attitude towards, and change their traditional views regarding Japan; for then, I firmly believe our Northern Expedition can conquer Peking in two months and likewise Sino-Japanese relations will gradually become more friendly."

It was doubted at the time whether Japan had actually agreed to such an arrangement and there has been no confirmation of it from any Japanese source. Mr. Huang Fu was appointed to his position as Minister of Foreign Affairs of the Nationalist Government because it was assumed in Nationalist circles that he was in a position to "handle" the Japanese. It was assumed from his past history that he could make arrangements which would make it possible for the Nationalist armies to pass through Tsinan without coming into conflict with the Japanese. Every sacrifice of principle and person was made to satisfy General Huang Fu. The Kuomintang as a political organism capable of controlling its own militarists was progressively suppressed until to-day it is moribund and incapable of arousing enthusiasm among the Chinese people. Officials who have long served the Nationalist cause, like Mr. Quo Tai-chi, acting Minister of Foreign Affairs and Commissioner of Foreign Affairs in Shanghai, were dismissed from office by Huang Fu. He became so powerful that during the months of March and April, he actually dominated and controlled the Nationalist Government.

All this was done because he had guaranteed that he could arrange with Japan that the Nationalist armies could pass through Shantung without interference by the Japanese troops. These facts seem to indicate:

First, that Mr. Huang Fu, the Nationalist Minister of Foreign Affairs, was prepared to recognize the right of Japan to send troops to Shantung; whether it is one soldier or 26,000 soldiers does not effect the principle. His tacit consent to Japan's sending of troops to Shantung definitely fixes the fact that the Nationalist Government, through its responsible Minister of State, was not opposed in principle to Japan doing in Tsinan what the British, American, French, Italian, Dutch, Portuguese and Japanese Governments did in Shanghai when the Nationalist troops were on their way here.

Secondly, it would appear that trouble was anticipated in Nationalist circles and that Mr. Huang Fu was elevated to his high position because it was believed that he was the one man who would know how to deal with the Japanese if trouble should occur. As a matter of fact, during the advance of the Nationalist armies from Nanking to Tsinan, the Minister of Foreign Affairs of the Nationalist Government, was actually at the front with the Commander-in-Chief to handle personally any negotiations with the Japanese in Shantung. It is not usual for Ministers of Foreign Affairs in China or elsewhere to travel with an army in the course of actual fighting and the nervousness evidenced by the Nanking Government can only be attributed to a belief on the part of those in authority that trouble would occur.

It is suggested in Nationalist quarters that the mere presence of Japanese troops in Tsinan was sufficient to bring about a clash between the revolutionary Nationalist armies and the Japanese troops. This is quite possible, but it is to be expected that Commanders can control their troops and that an army advances in an orderly fashion.

## Tanaka's First Statement

On April 20, 1928, Baron Tanaka, Premier of Japan, issued the folowing statement:

"At the time the Japanese troops were withdrawn from Shantung, the Japanese Government took occasion to declare that, while they had no intention of countenancing any particular party or faction in connection with the disturbances in China, yet, if the peace and order in localities containing many Japanese residents were disturbed, giving cause for apprehension that the safety of the said residents might be affected, the Japanese Government would be constrained to take such measures of self-protection as might be required.

"In view of the sudden change of the situation in Shantung, which has precipitated disturbances threatening to involve the region where the Japanese reside, the Japanese Government are

Mr. Huang Fu, Minister of Foreign Affairs of the Nationalist Government now compelled, in pursuance of the above-mentioned declaration, to dispatch from Japan proper a contingent of about 5,000 soldiers to the Kiaochow-Tsinan Railway zone *via* Tsingtao for the protection of the Japanese residents. Pending the arrival of these soldiers, three companies drawn from the Japanese garrison in China will be sent to Tsinan as an emergency measure to meet the situation.

"It need scarcely be stated that the dispatch of troops by the Japanese Government again to the Shantung districts is an unavoidable measure of self-protection, by no means implying anything like an unfriendly intention towards China and her people, or an interference with the military operations of any of the Northern and Southern forces. It may be added that, as soon as the Japanese Government consider it no longer necessary to maintain the troops for the protection of the Japanese residents in the affected areas referred to above, the troops will be immediately withdrawn, as on the last occasion."

## Nanking's First Appeal to Japan

Almost immediately the Nanking Government issued the following appeal against anti-Japanese disorders. It will be noted that an attempt is made here to interfere in the internal affairs of Japan by appealing to the Japanese people to oppose their Premier and by suggesting at a critical moment in the internal affairs of Japan, that Baron Tanaka, the Japanese Premier, be defeated in the impending meeting of the Diet :—

Nanking, April 24.

Instructions have been issued by the Central Party Headquarters to all members of the Kuomintang in reference to the despatch of troops to Shantung by the Imperial Japanese Government. The order states :—

"At the moment of the continued success and near completion of the northern punitive expedition of our Nationalist revolutionary army for uprooting the remnants of militarism and bringing the national revolution to a conclusion, the Japanese Government, upon the pretext of protecting its nationals, is once more despatching troops to the Kiaochow-Tsinan region.

"Such absolutely unreasonable and outrageous action constitutes an abuse of our territorial sovereignty and a great offence against international morality.

"However, at the present moment of intense popular and nation-wide indignation against the despatch of Japanese troops, all members of the Kuomintang of China should give befitting guidance to the people in accordance with the following rules :—

"1.—The despatch of Japanese troops to Shantung on this occasion is a mistaken measure on the part of the Premier Baron Tanaka ; for, not only is it strongly objected to by various political parties in Japan, but it is also an act which the Japanese people themselves are unwilling to endorse. For this reason, we should preserve and maintain our traditional attitude of hoping for an early Sino-Japanese *rapprochement* in the expectation that the Japanese people and their political parties will, in the shortest possible period, rectify the rash action of their Premier.

"2.—The Japanese Government's action in despatching troops to Shantung constitutes an infringement of our territorial sovereignty and a violation of the principles of international justice. We should, however, cause our own rectitude to be shown to the world, thereby enabling the Powers to sympathize with us in our aspirations for independence, freedom and equality in the family of nations. All foreign lives and property regardless of the locality (both within and without the war-zone) must be fully protected.

"3.—For our independence and self-determination and in opposition to any encroachment by the Imperialists, we have sworn to accomplish the northern punitive expedition within the shortest possible period. But safety and solidarity in the rear is of equal importance as progress in the war fronts. We should, therefore, strictly maintain peace and order and observe all rules and discipline, so that our officers and soldiers can concentrate on the struggle without anxiety about the rear. Our speech and action should be in accordance with the instructions of the Central authorities, not in the least deviating therefrom.

"All senseless action, such as labor and school strikes, which may tend to distract attention and even cause disquiet in the rear, should be avoided ; for it is not altogether unlikely that the Communists in various places may seize upon the opportunity for agitation and rebellion. Moreover, we must be especially careful to avoid giving an opportunity to the Communists to stage an uprising.

"Besides giving the above instructions to various Party organs and commanding strict observance thereof, the Central Party Headquarters hereby instructs all Kuomintang members to follow these instructions in leading the people in their courageous and victorious struggle to conquer all difficulties. Only unity of spirit and effort can achieve great success. Let all members of the Kuomintang pay attention to this."

## Peking's Protest

Just previous to the issuance of this statement, the Minister of Foreign Affairs of the Peking Government formally protested to Japan in the following terms :

The Note from Mr. Lo Wen-kan, Peking's Minister for Foreign Affairs, which crossed the above memorandum, is given in translation by *Toho* as follows :—

"I am in receipt of a telegram from Mr. Wang Yung-pao, the Chinese Minister in Tokyo, stating that the Japanese Government is reported to have decided, at a Cabinet meeting, to despatch troops to Shantung for the second time. I beg to remind Your Excellency that when the Japanese Government sent troops to the Tsingtao and Tsinan regions in June last year, the Foreign Ministry of our Government repeatedly protested against the action and upon their withdrawal in September it sent a Memorandum to Your Excellency expressing the hope that the Japanese Government would refrain from taking such an erratic action in future. In view of the report from Mr. Wang Yung-pao, I request Your Excellency immediately to convey this message to your Home Government and move your Government, if it has really decided to despatch troops, to rescind the decision so as to furtherance the friendly relations between the two countries."

On April 21.—Mr. Lo Wen-kan wrote further :—

"The Chinese Government is unable to acquiesce in your justification for the despatch of troops, since the question concerns China's sovereign rights. The nationals of your country residing in China ought to rely on protection by the Chinese Government, and it will take the responsibility of protecting foreign residents in China."

To this the Japanese Minister replied on April 23 :—

"Dangers to the lives and property of the Japanese residents in Shantung are very imminent, and the conditions there are such that the Japanese residents are unable to rely upon protection by Chinese authorities alone."

The first clash between the Nationalist and Japanese troops occurred on May 3. The Tokyo *Nichi Nichi* gives the following interview between its correspondent at Tsinan and General Chiang Kai-shek, which occurred at the very moment when the first shots were fired. General Chiang is reported to have said :—

## Chiang Kai-shek on May 3

"The incident is an irreparable loss, and our revolutionary movement is now at an end. Our long years efforts have gone to waste.

"I gave strict orders to my soldiers not to start any trouble with the Japanese troops. I even announced that they would be shot to death if they started any trouble with the Japanese. Furthermore, I did not at first intend to enter Tsinan with so large a force, but the Northerners had destroyed the railway bridge over the Yellow River, and I was compelled to let the troops remain here for the time being."

Upon hearing of the booming of the Japanese guns and exchange of firing between the Chinese and the Japanese, General Chiang said :

"We must take all measures to avoid the Japanese guns. I shall at once send a representative to the Japanese headquarters. Will you tell the Japanese commander, if you meet him before my representative, that I am ready to let our troops withdraw 30 miles (Chinese) outside the business district, and that I shall execute all those responsible for the incident ?

"I am ready to accede to any Japanese demands. But I want the firing to be stopped. I want to see Consul Nishida before sundown somewhere."

According to the *Nichi Nichi's* correspondent, shortly before 3 p.m. May 3, Consul Nishida asked the Japanese military authorities to stop the firing. He telephoned the Chinese military headquarters to do likewise. Foreign Minister Huang Fu and Chief of

Staff Hsu of the Nanking forces did their best to stop the firing between the two sides and also apologized for the action of the plundering Chinese soldiers.

Posters were put up on every side that an agreement had been reached between the Chinese and the Japanese authorities, and ordering all the troops to cease firing, but the Chinese continued to shoot. The fighting continued until early the following morning.*

## General Fukuda's Report

In this summary of the events at Tsinan, no atrocity stories will be published emanating from either side unless they appear in official documents. The first official report with regard to this Incident was issued by General Fukuda, Commander-in-Chief of the Japanese forces in Tsinan:

"Upon his arrival at Tsinan with his headquarters on May 2, General Chiang Kai-shek, Commander-in-Chief of the Nationalist Forces, demanded immediate withdrawal of the Japanese troops, stating that the Nationalist forces would undertake full charge of maintaining peace and order and of protecting the lives and property of foreign residents, and adding that the Japanese troops, if they are not hostile to the Nationalist Army, should withdraw immediately.

"As the military discipline of the Nationalist forces was comparatively well maintained at that time, our army, in compliance with the Nationalist request, immediately removed defensive works on the same night. The number of the Nationalist troops which had arrived at Tsinan and its outskirts by that day was estimated at 100,000, and approximately 40,000 of them were stationed near the commercial area.

"At 9.30 o'clock on the morning of May 3, several Chinese soldiers suddenly broke into the shop of Mr. C. Masufusa, agent for the *Manshu Nippo*, located outside the Lin Hsiang Men Gate and began looting. A party of Japanese troops commanded by Lieut.-Captain Kumekawa rushed to the scene to restrain the Chinese troops, and the latter were compelled to respond. This was followed by fighting between Japanese and Chinese troops at all points.

"Groups of Chinese soldiers, with large bodies of troops followed behind them, openly started looting in broad daylight and in the very zone guarded by the Japanese troops. Japanese who were massacred by Chinese soldiers amounted to a large number. It is quite evident from the foregoing fact that the outrages were due to a prearranged plot for a certain aim.

"The fighting was severest in the limits guarded by the 47th Regiment and the party of infantrymen despatched from the Japanese Garrison in Tientsin. Principal causes responsible for a comparatively large number of casualties among the Japanese residents and troops are:—

1.—The Japanese troops removed defensive works before the outburst of disturbances, trusting assurances given by General Chiang Kai-shek and other responsible Southern officers.

2.—Part of the Southern soldiers had smuggled themselves in houses in the Japanese defence zone, and consequently the Japanese forces were attacked from front and rear.

3.—As a result, the Japanese troops were unable to extend protection to those Japanese residents living outside the defence zone.

"The fighting became most furious towards noon on May 3, but as the Chinese military authorities requested us to cease hostilities, we at once ceased firing in compliance with the Chinese request. Nevertheless, Chinese troops kept firing due to their chief's orders not reaching all of them, and the Japanese troops were compelled to respond to the Chinese firing again.

"While accepting the challenge, we conducted negotiations with various quarters in an endeavor to end hostilities. On the other hand, we did our utmost in safeguarding the Japanese residents, the majority of whom were accommodated in safe places.

"In the meantime, the communication between our headquarters and various other quarters were completely interrupted, and we passed the night in great anxiety. The following morning, an agreement was reached between us and the Southern authorities for the withdrawal of Chinese troops from the commercial area. But those Chinese soldiers hiding in the area continued sniping at Japanese troops. In view of this we decided to clear them out of the area by force. As a result, the majority of the Southern soldiers were driven out of the commercial area, and the communications between our defence areas in the western and eastern part of the commercial area were finally restored.

"The situation is now outwardly quiet. Southern troops who are detained in our Headquarters number more than 1,000."—*Toho.*

From this document certain facts become clear.

1.—The Japanese removed their barricades and troops at the request of General Chiang Kai-shek on the presumption that he could and would maintain order and that his troops would obey him.

2.—It is not clear who fired the first shot but the fact is certain that looting took place in the commercial area previous to the shooting.

3.—An agreement was reached between the Japanese and the Nationalists to cease firing, but the Japanese claim that that agreement was broken. There is a circumstantial report in this connection which should be cleared up as soon as possible. It is to the effect that the Japanese commander and General Huang Fu had agreed to send two Chinese and two Japanese soldiers as a party of four bearing their own flags and signs to stop firing immediately. One Japanese member of this party of four was shot. A protocol was drawn up describing the incident and the fact that the Chinese shot at this party. This protocol was signed by Mr. Huang Fu, Minister of Foreign Affairs of the Nationalist Government. It is understood that he has maintained that he signed this protocol under duress, but it is difficult to believe that any Minister of State would sacrifice his country by signing a document which in effect makes China a guilty party before any international tribunal. It is of the utmost importance that this document, if it exists, should be published that the facts may be completely known.

The first report issued by the Chinese was dated May 4 and is substantially as follows:

## Chiang Kai-shek and Huang Fu's First Account†

"The immediate cause of the massacre by the Japanese troops arose when a Nationalist soldier passed through a street which had been previously included in the occupied area by the Japanese military authorities.

"After killing the soldier on the spot, a large detachment of Japanese troops was despatched to the Bureau of Foreign Affairs into which they immediately broke in. Mr. Tsai Kung-sze, member of the Political Committee in the War Zone and concurrently Special Commissioner of Foreign Affairs for Shantung, was dragged out, and bound with ropes. After cutting off his nose and gouging out his eyes, the Japanese troops shot him dead. Subsequently, the Bureau was set on fire.

"Later, the same Japanese soldiers turned to the Tsinan office of the Minister for Foreign Affairs and, failing to find the Minister there, they likewise set fire to the building.

"While these atrocities were taking place, other large units of Japanese troops, directing an organized gun-fire upon Nationalist soldiers and civilian Chinese, killing a great number of them, also arrived at Nationalist military posts and forcibly disarmed our soldiers. All this took place on the forenoon of the 3rd inst.

"In the evening while high Military Commanders of the Nationalist Forces were discussing with the Japanese Commanders concerning various rehabilitation measures, the Japanese troops again shelled our military quarters, destroying our wireless station. At the time of the despatching of this message, firing by Japanese troops has not yet stopped.

"This untoward event occurred when soldiers were quite a distance from the Japanese troops. But against these outrageous and atrocious actions of the Japanese troops, the Nationalist soldiers, in order to properly protect themselves, could not but reply to the firing.

"Those killed and injured (of our men) number over 1,000."

(*Signed*) CHIANG KAI-SHEK,
HUANG FU.

Nothing in this statement is said of the discussions with General Fukuda. The murder of Mr. Tsai, is, of course, very important, if true, but there has been no independent corroboration, to date, of this fact.

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*This translation is taken from the *Japan Times*.

† Kuo Min News Agency.

On May 4, Mr. Huang Fu, Minister of Foreign Affairs of the Nationalist Government, addressed the following protest to Baron Tanaka, Premier and Minister of Foreign Affairs of the Japanese Government. In this statement appears the report that the members of Mr. Tsai's staff were also murdered. From other sources it is learned that they are still alive* :

## Huang Fu to Tanaka

His Excellency, Baron Tanaka, Minister for Foreign Affairs,
Tokyo, Japan.

"Sir—The despatch of troops to Shantung by Japan violates China's territorial sovereignty and the Nationalist Government have twice protested against this action and also declared that, should unfortunate consequences result therefrom, the Japanese Government would have to bear the responsibility, etc.

"To my greatest surprise, the Japanese soldiers at Tsinan, on May 3, early in the morning, and without reason whatsoever, committed the most provocative acts and fired ruthlessly at our soldiers and people. Thereupon, the Nationalist Commander-in-Chief, Gen. Chiang Kai-shek, ordered his troops to keep away from the neighborhood of the region occupied by the Japanese soldiers, and at the same time instructed high military officers to hasten to the Japanese headquarters to arrange measures for the prevention of a possible clash. Our representatives were repeatedly insulted and no result was reached. The Japanese troops swept the neighborhood with machine-gun fire and repeatedly directed their big guns at buildings of the Government and of the people.

"A group of Japanese soldiers were sent to attack the office of the Commissioner of Foreign Affairs of Shantung, and, after having cut off the ears and nose of Mr. Tsai Kung-hsi, the Commissioner, the soldiers murdered him and all the members of the staff in cold blood. The temporary offices of the Minister for Foreign Affairs of the Nationalist Government were also fired upon and searched by organized Japanese soldiery. Countless Chinese soldiers and citizens were murdered. The Japanese troops invaded the region occupied by the Nationalist soldiers and compelled them to disarm. The Nationalist soldiers refrained from opposing them.

"At 11.30 p.m. on May 3, while our high military authorities were negotiating with Col. Kuroda, the Japanese Chief of Staff, for the best steps that should be taken, the Japanese soldiers fired with their big guns five times. Japanese soldiers were also sent to destroy our wireless stations on May 4. Although there was not one single Chinese soldier anywhere in the neighborhood of the region occupied by the Japanese troops, the firing has been continued by the Japanese up to the present. Communications and business in the whole city are at a standstill.

"Condemnable actions like these are not only trampling under foot completely China's sovereign rights, but are also absolutely unpermissible by human justice.

"Therefore, the Nationalist Government again has to lodge with the Japanese Government the strongest protest and has to request the Japanese Government to instruct by telegraph their troops at Tsinan to stop forthwith their firing and to withdraw at once. All the questions relating to violation of international law and treaty stipulations as a result of the stationing of Japanese troops in Shantung shall be settled through proper procedure.

"The Nationalist Government wish also now to declare that they reserve the right to present all necessary demands. It is presumed that the Japanese Government are unwilling to assume an outrageous, intolerable, and hostile position against the whole Chinese race, which position is also against the dictates of justice and humanity."

(*Signed*) HUANG FU,
*Minister for Foreign Affairs.*

## Chiang Kai-shek's Calm Attitude

General Chiang Kai-shek has throughout maintained the calmest attitude. He has indicated that he has no desire to permit the Tsinan incident to deter his forces from proceeding to their objective, which is Peking. It is imperative at this stage to note that the Japanese military authorities at Tsinan would not permit the northerners to take advantage of this Incident to move troops against the Nationalists and that as a matter of fact, the Nationalist advance toward Peking continued with hardly any delay, in spite of the Tsinan Incident. The following telegrams dated May 7 and 8 give evidence of General Chiang Kai-shek's attitude :

On the eve of his departure from Tsinan to the front, Commander-in-Chief Chiang Kai-shek, in a communication to the Japanese Commander in Tsinan, requested that the Japanese troops there be kept within bounds so as to avoid further eventualities. A translation of General Chiang's letter reads as follows :

"Sir :

"Since the unfortunate affair of the 3rd inst. the Commander-in-Chief of the Nationalist Forces, being desirous of a peaceful settlement, has strictly ordered his soldiers to withdraw from the neighborhood of the areas occupied by the Japanese troops. All Nationalist soldiers have now evacuated their posts and are resuming the Northern Expedition, only a required number of Nationalist troops being stationed in the city for the maintenance of peace and order.

"The Nationalist Commander-in-Chief is likewise departing for the front to-day, and accordingly communicates to you to the above effect, with the hope that you will strictly order the cessation of such unusual actions of your troops as shown in the last two days so as to facilitate the maintenance of friendly feelings between the two nations. This is his sincere hope."

(*Signed*) CHIANG KAI-SHEK,
*Commander-in-Chief of the*
*Nationalist Forces*

May 5, 1928.

Commander-in-Chief Chiang Kai-shek has dispatched the following circular telegram to all Nationalist Military Commanders, instructing the protection of all foreign lives and property during this time of intense public indignation against Japan :

"At the outset of our Northern Expeditionary Forces, I, as Commander-in-Chief, sincerely proclaimed to the peoples of all friendly countries that, in order that our Nationalist Army can reach the goal of the Revolution, it must first exterminate the obstacles of Militarism. I also announced at the same time that wherever the Nationalist soldiers go they must assume full responsibility for the protection of both native and foreign lives and property, believing that all our people in the rear will be able to appreciate our views and co-operate with us.

"Unexpectedly, however, following the occupation of Tsinan by our soldiers misunderstanding arose between the Japanese troops and ourselves.

"Now, with the purpose of exterminating our chief obstacle and in order to shorten the course of the Revolution, we must, on the one hand, resume the Northern Expedition and, on the other, entrust to the Ministry of Foreign Affairs to strictly deal with the matter for an appropriate settlement.

"It is to be hoped that all Comrades will appreciate the situation and instruct their respective subordinates to continue the protection of all consulates, nationals and property of the friendly Powers, and especially to suppress all kinds of propaganda and slogans which may prove injurious to international friendship.

"What is of more importance : Do not allow your indignation of the moment to disrupt our greater projects."

(*Signed*) CHIANG KAI-SHEK.†

## The Tsinan Japanese Consul's Account

This is borne out in a report made by Mr. Nishida, Japanese Acting Consul at Tsinan :

"I called on General Chiang Kai-shek, in company with Major Sakai, at 9.30 a.m. on the 3rd, under the escort of Lieut.-Colonel Sasaki. I explained to General Chiang Kai-shek the purport of Japan having sent her troops to Tsinan and the condition in which they were carrying out their garrison duty. We were pleased to note that no violence or looting had taken place because of the existence of perfect understanding between the Chinese and Japanese forces. The meeting was attended by Foreign Minister Hwang Fu, Chief of the Staff Hsiung Shih-hui and General Chu Pei-teh and others. General Chiang Kai-shek told me that he would instruct the Political Affairs Committee to look after judicial and executive matters, appointing Mr. Chiang Tso-pin the Chairman of the Committee. He further informd me that General Fang Chen-wu would be appointed the commander of garrison, and that the army would proceed in the northern expedition adding that he was earnestly desirous to see the relations between Japan and China grow more and more friendly. Mr. Chiang Tso-pin, who was also present, expressed his wish of meeting General Fukuda at an early opportunity.

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*No full report on this subject has yet been made by either side.

†These despatches were issued by the *Kuo Min News Agency*.

"I left the meeting and was going back to the Consulate. As I reached the city gate, I heard firing at various places. Many bullets whistled by my car. I braved the danger and returned to the Consulate, where I was met by General Fukuda. I asked him to take steps to get the trouble confined to as small a compass as possible. I also communicated with General Hsiung Shih-hui and Mr. Huang Fu, and informed them the importance of stopping firing. General Hsiung replied that he would order his troops to stop firing, adding that General Chiang would order the Chinese troops to leave the International Settlement. Whether the order was miscarried or the men did not obey the command I do not know, but shooting was kept up by Chinese soldiers, who hid themselves in houses from which they were firing. The Japanese soldiers replied and in that way street fighting was fought.*

## Chiang's Statement to His Armies

In a circular proclamation to the various army corps, General Chiang Kai-shek stated as follows:

### PROCLAMATION

"The Central Authorities have already instructed the Ministry of Foreign Affairs to lodge a strong protest with Japan and an early settlement of the case is expected in reference to the recent unfortunate conflict with the Japanese at Tsinan.

"All military comrades, therefore, must respect the wishes of the Central Authorities and bear patiently with their decisions in order to achieve the aim of the Northern Expedition. We must show our fortitude, and must not, in a moment of recklessness, resort to exhibitions of force against Japanese residents in China. We must not ignore existing misunderstandings and create further complications.

"Such functions as public gatherings and processions are easily conducive to disturbances and should be strictly prohibited, and all commanders should absolutely forbid their subordinates to participate in such functions so as to avoid developments which may prove disruptive to the general situation.

"After this proclamation, any Nationalist soldiers discovered wilfully disregarding and violating the order shall be severely punished according to Military Law.

"Let all take notice of the above and obey accordingly.

By Order

CHIANG KAI-SHEK,

*Commander-in-Chief.*"

General Chiang Kai-shek's attitude is of the utmost importance because he undoubtedly was more familiar with the actual facts of the situation and he undoubtedly understood better than those who were not in Tsinan at the time what the implications were. It is important to note that both General Chiang Kai-shek, Commander-in-Chief of the Armies, and Mr. Huang Fu, Minister of Foreign Affairs, were present in Tsinan when this Incident occurred. Secondly, that General Chiang Kai-shek was not antagonisic to the Japanese and sought to arrange mutual co-operation so that the presence of the Japanese troops would not interfere with the Nationalist armies. Thirdly, that General Chiang Kai-shek subsequently dismissed General Ho Yao-tzu, Commander of the 40th Nationalist Army for disobedience and lack of discipline. This dismissal seems to imply that in the opinion of General Chiang Kai-shek, General Ho Yao-tzu is, to a large extent, responsible for the Incident. In this connection, it is important to note that General Ho Yao-tzu's troops are Hunanese as were the troops of General Chien Chen, who was responsible for the Nanking Outrage.

## Minister Huang Fu's Personal Statement†

We now come to the most serious document on the Chinese side which must be published exactly as it appeared. This document, which is the official statement of the Minister of Foreign Affairs of the Nationalist Government, must be accepted as fully stating China's case. The document follows:

The following statement of the personal experiences at Tsinan of General Huang Fu, Minister of Foreign Affairs, is issued for publication:—

*(1) My trip to Tsinan.*

"On the afternoon of April 30 our army occupied Tsinan. General Chiang Kai-shek reached there in the dead of night on May 1st. Having received several telegrams from General Chiang, I started for Hsuchow for the purpose of discussing important affairs with him. When I reached Hsuchow, General Chiang had already left for Tsinan; I immediately followed, and on May 2nd at half-past ten p.m., I also reached there. But as it was very late, I stopped temporarily at the office of the Tsin-Pu Railway, which is located in the commercial area. There, also, stayed those who travelled together with me and more than twenty of my guards. Mr. Chiang Tso-ping, Chairman of the Political Committee in the War Zone, accompanied by other members of the Committee, took the same train with me from Hsuchow for Tsinan and so most of them stayed in the Tsin-Pu Railway office.

*(2) Conditions previous to the Disturbances.*

"On the morning of May 3rd, I entered the city to call on General Chiang. On my way, I observed that most of the shops had already resumed trade and the conditions were very good. When I reached General Chiang's Headquarters, I was informed that the sand-bags and barbed wire, which were placed in the commercial area by the Japanese troops, had been removed the previous night.

"During our conversation, there came to call on General Chiang, the Japanese Consul-General, Nishida, the Japanese military officer resident there, Sakei, the garrison commander, Koizumi, who was sent from Tientsin, and staff officer Kono. The conversation was friendly. The garrison commander, Koizumi, came also to take leave, saying that he planned to take his troops back to Tientsin and that, on account of the disruption of communications in the northern section of the Tsin-Pu Railway, he had already requested the Kiaochow-Tsinan Railway office to prepare trains so as to enable them to return to Tientsin by way of Tsingtao.

"I was very much gratified to find that for the first two days after the entry of the Nationalist Army both Chinese and foreigners enjoyed safety and security.

"But, while I was on my way to my place of sojourn at about eleven in the night, I heard, to my great surprise, shooting on all hand and saw people rushing about and shouting that 'the Japanese troops have begun shooting our soldiers everywhere.'"

*(3) What I experienced in my temporary office in Tsinan.*

"My car rushed through the firing line and reached its destination. The whole day, firing was heard at intervals and communications were cut. Telephone messages were continually received that a great many people on the streets were killed.

"The wooden fence of my temporary office which is in the Tsin-Pu Railway office was surrounded by Japanese soldiers. I was communicating with different parties by telephone for, first, stopping firing and, then investigating the real situation, when all of a sudden, a large number of Japanese soldiers surrounding the fence fired on my office twice, and rushed in, the inmates of the house crowded together, and the whole place was in turmoil and confusion. The windows of my office were honey-combed with bullets. I went upstairs and, opening the window, persuaded them to stop firing.

"Then coming down, I went into the courtyard and talked to the Japanese gendarme, Tomida, showing him my card, explaining to him my official position, adding that this was my temporary office and requesting him to consider carefully any step they took. But he asserted that bullets came out from my house and demanded that my guards hand over their arms.

"I refused and told him that I always enjoined my guards not to go out or fire their rifles so that what he (Tomida) said must have been due to some mistake. Whereupon, Tomida demanded to enter into my house in order to telephone to the Japanese headquarters for instructions.

"He then made an examination of the whole place, and seeing the rifles of my guards all stacked in one place and being informed that Captain Liu would be responsible for the behavior of my guards, he left at last.

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*Toho News Agency.

†Kuo Min News Agency

(4) *The negotiations I conducted with the Japanese military officers.*

"Soon after, Tomida come with the card of the staff officer Kono, told me that the Nationalist soldiers and the Japanese soldiers were firing on each other, that communications were entirely cut, and that, as Kono was afraid of serious consequences, he (Kono) asked me to devise with him in person measures for the stopping of firing.

"At the same time General Chiang told me by telephone to arrange with the Japanese military officers as to how to restore the disrupted communications so that firing could be stopped.

"Undaunted by danger and difficulty, I went to the Yokohama Specie Bank and agreed with Kono for each side to send two persons to patrol the firing line and to stop firing.

"Although the result was not absolutely satisfactory, yet firing gradually diminished.

"At the same time I communicated by telephone with General Chiang and was informed that he had strictly forbidden his soldiers to open fire and ordered them immediately to keep away from the region occupied by Japanese troops. For the sake of facilitating intercourse, General Chiang was to make with the Japanese military authorities the following arrangement; that the cars used by the officers sent by General Chiang would fly a special flag in order to make identification easy and that the Japanese military officers should order all the Japanese soldiers not to fire on the cars with such flags.

"When the arrangement was made, I again broke through the firing line and entered the city. When I reached General Chiang's headquarters, it was about 7 o'clock. That night I stayed in his headquarters.

(5) *How Chinese soldiers were disarmed by Japanese troops.*

"My temporary office in the Tsin-Pu Railway office was located in the danger zone demarcated by Japanese troops. After I left, the Japanese troops forced all the Chinese in military uniform to get out and took all the arms belonging to those Chinese, ostensibly for the sake of safe custody of those arms.

"At the same time a small number of Nationalist soldiers were surrounded by the Japanese troops and even the railway police of the Tsin-Pu Railway office were reported to have been compelled to surrender their arms. How large the number of Chinese soldiers subjected to such treatment cannot yet be ascertained.

(6) *The Destruction of Wireless Stations.*

"On the night of May 3rd, at 11 o'clock, General Chiang again sent Lieut.-General Yung Sze-huei to the Japanese military headquarters to discuss measures for the improvement of the situation. In the midst of discussion, five cannon shots were heard and the noise made by the throwing of bombs. On investigation, it was found that Japanese soldiers had destroyed our wireless stations and that soldiers safe-guarding those stations were killed.

(7) *The murder of the Commissioner for Foreign Affairs.*

"On May 4, at 8 in the morning, Chang Han-sze, the servant of Tsai Kung-shih, who was Commissioner for Foreign Affairs for Shantung, came to my office and reported that on the previous night, at 11 o'clock, more than 20 Japanese soldiers suddenly broke into his office, bound him and his whole staff of more than ten persons, shot them all, and cut off the ears and nose of the Commissioner. The servant jumped over the wall and thus made a narrow escape; he was fired at by Japanese soldiers, and was wounded in his body.

"The Political Affairs Committee in the front is making investigation of the names of those thus murdered by the Japanese troops.

(8) *Leaving Tsinan for Tangchiachun.*

"On the morning of May 5th, news was received that General Feng Yu-hsiang was on his way to Tsinan. Generals Chiang, Feng and myself, with the commanders of our different armies, agreed on the plans with regard to the crossing of the Yellow River to conclude the work of the Northern Expedition. General Chiang was to send a communication to Lieut.-General Fukuda informing him that we always have in mind the importance of the general welfare. This communication has already appeared in the newspapers.

(9) *The Causes of the Disturbances.*

"Of the causes of the disturbances, different explanations have been given. The Japanese naturally spread propaganda entirely favorable to their side. But, according to reliable information received by us, the Japanese troops were the first to open fire. To ensure accuracy, the Nationalist authorities have ordered the Chief of the Garrison Headquarters, the Chief of the Public Safety Bureau, the Chief of the Bureau of Foreign Affairs and the Magistrate of Tsinan, respectively, to make careful investigation and make every effort to collect evidence to serve as basis for negotiation in the near future.

(10) *Deaths and Present Conditions.*

"On account of this outbreak, casualties on both sides were numerous. But our soldiers, after the strict orders issued by General Chiang, never returned fire, while Japanese troops from time to time fired on ours, so that the number of deaths on our side is many times more than that on the Japanese side. Besides, as the Japanese fired into the streets, a great number of pedestrians, who are powerless to resist the Japanese troops or to protect themselves, were killed.

"The Nationalist forces have already crossed the Yellow River; and only a barely sufficient number of troops is left in Tsinan to maintain order.

"In the neighborhood of the Commercial Area there is no longer a state of tension.

"As for other foreign nationals, they are all safe.

"The Nationalist military leaders at the front are all wholeheartedly co-operating with each other, concentrating their attention on concluding the Northern Expedition. It is therefore not likely that this outbreak will assume alarming proportions.

"That I conducted negotiations in Tsinan was necessitated by the exigencies of the moment, and as telegraphic communications have been obstructed, I therefore started for the Capital on the morning of May 6th in order to continue the negotiations, in pursuance of the orders of my Government, But the mental suffering that I have experienced is beyond description, and when I recall the events that occurred in Tsinan, I cannot but feel highly indignant. What I have said is only a general survey of the situation."

"(*Signed*) HUANG FU,
*Minister of Foreign Affairs.*"

Omitting Mr. Huang's personal experiences and heroism, the following facts are brought out by his report:

1. He bears out the statements of General Fukuda's report already quoted that relations were satisfactory and friendly during two days after the arrival of the Nationalist troops in Tsinanfu.
2. The Japanese had removed the sandbags and barricades and were prepared to trust that General Chiang Kai-shek would maintain order and protect life and property.
3. Mr. Huang Fu offers only hearsay evidence of an excited mob running from soldiers that the Japanese had fired first.
4. The only proof that he provides that Commissioner of Foreign Affairs Tsai and his staff were killed and mutilated by Japanese, is the evidence of a runaway servant who managed to escape from the Commissioner of Foreign Affairs house.

As unfortunate as the Tsinan Affair is, and as sympathetic as the whole world must be with China, it is difficult for anyone to go beyond Mr. Huang Fu's report. It must stand as the concrete statement of his Government on the subject and it is faulty throughout. It does not carry conviction; it is incorrect in details as to dates; it does not indicate that it is based upon a first-hand knowledge of the facts, although Mr. Huang Fu was in Tsinan at the time, and its most condemning phrases are based entirely upon hearsay from sources which cannot be accepted as reliable. It is this report which seriously endangers China's case before any international tribunal, for from any standpoint, when taken together with General Fukuda's report, it indicates that the disorders in Tsinan originated with the Nationalist troops. It may not have been Mr. Huang Fu's intention to give this impression but he has nevertheless succeeded in doing so. If the cause of China suffers because of his report, that is not the fault of the Japanese but of the Minister of Foreign Affairs of the Nationalist Government.

## Nanking Counsels Calm

The Chinese people were naturally wrought up over this incident and to avoid disturbances in the rear of the victorious

Nationalist armies, the Government Council on May 8 issued the following proclamation:

PROCLAMATION

"With the rapid advance of the Expeditionary Forces along all Routes, the military situation is making satisfactory progress. The Government Council, in considering adequate measures to deal with the general situation, has already formulated definite and detailed plans with regard to the conduct and prosecution of the Northern Punitive Expedition.

"As regards the Tsinan Massacre by the Japanese troops, the Government has also instructed the Ministry of Foreign Affairs to settle the matter in the hope that the country may be unified at an early date and that all diplomatic issues can be settled in due course of time.

"At this critical moment, therefore, it is imperative that the entire people should, in a spirit of soberness and unity, strive together to hasten our success.

"According to recent reports from various organs that large quantities of Communist literature have been seized, it seems evident that the Communists are fomenting trouble and are taking advantage of the school and labor strikes and other disturbances to destroy peace and order in the rear.

"Instructions have been issued to the Military and Police authorities both within and outside the Capital to institute a rigid search and arrest all disturbing elements for punishment. The Government Council, for the purpose of carrying out its foreign policy and maintaining peace and order, hereby once more warns the people, the schools, and other public bodies to absolutely obey all orders and instructions issued by the Central Party Headquarters and the Nationalist Government. All must observe good discipline and attend to their own respective business and duties. In foreign affairs, they must wait for and abide by the decisions of the Central Authorities. As regards guarding against various reactionaries and safeguarding all foreign nationals, the Military and Police authorities of various localities are responsible.

"It is hereby warned that those found guilty of disobeying the above order and instructions and wilfully violating law and discipline, shall be severely punished without the least leniency in accordance with martial law.

"The Military Council, the various Ministries and Councils, the Provincial and Municipal Authorities have been instructed to execute severally the above orders. Let all obey.

"By order,

(*Seal*) "THE NATIONALIST GOVERNMENT."

## Japanese Troops to be Withdrawn

The Japanese Government on May 9 issued the following statement, the last paragraph of which clearly defines Japan's attitude and contains the definite promise that troops will be withdrawn as soon as life and property at Tsinan is safe:

"When recently the disturbances in China threatened to spread to Tsinan, the Japanese Government dispatched troops for the protection of Japanese residents in that region, and took occasion to explain their attitude in connection with that unavoidable course of action.

"It is now to be observed that, since the occurrence of the deplorable incident at Tsinan, the situation in that district has so much increased in gravity that the present strength of the Japanese troops there is insufficient for the protection of the Japanese residents. The Shantung Railway, connecting Tsingtao and Tsinan, is destroyed at various places, making it impossible, as things stand at present, to ensure the means of communication by that route. In these circumstances, it has been decided to dispatch the Third Division to Shantung with the object of securing the necessary protection to the Japanese residents and of ensuring the communication of the Shantung Railway.

"The present dispatch of additional troops being intended, as stated above, to protect the Japanese residents in Shantung and to ensure the communication of the Shantung Railway, which is essential for that purpose, its object is in no way different from that of the first dispatch of troops.

"Together with the dispatch of the Third Division, it has been decided to send five other companies from Japan proper to Tientsin. They were originally scheduled to be sent in June next as a periodical relief for the Japanese Garrison in China, but the date of their departure has been advanced in view of the circumstance that a part of the Garrison has recently been sent to Tsinan as an emergency measure. It has also been decided to dispatch an additional number of cruisers and destroyers to the Yangtze and to South China for the purpose of safeguarding the Japanese residents in case unforeseen happenings should occur in Southern districts out of possible misunderstandings relating to the Tsinan incident.

"*The present dispatch of additional troops and warships is intended for no other purpose than that of protecting the lives and property of the Japanese residents against such unfortunate incidents as might possibly occur in connection with the Tsinan affair, and it need scarcely be added that they will be withdrawn, as occasion permits, on the disappearance of the necessity for their continued maintenance.*"

## Mr. Soong's Sage Advice

Undoubtedly the soundest view on the Tsinan Incident expressed by any Chinese was an interview on the Tsinan Incident given by Mr. T. V. Soong, Minister of Finance of the Nationalist Government, to a representative of the *Kuo Min News Agency*, the full text of which is published herewith:

Mr. T. V. Soong, Minister of Finance, in an interview concerning the Tsinan Incident, stated:—

"The present situation between China and Japan is critical in the extreme, all the more reason why there should be clear thinking and fearless facing of facts on both sides. The objective facts are that, in violation of what is commonly held as international law, Japan landed troops on Chinese soil (which is quite different from the landing of international troops in foreign concessions last year), that two rival Chinese armies clashed, resulting in the defeat of the side which is popularly, although possibly erroneously, held as the side supported by the Japanese, thus bringing the victorious Chinese Nationalist troops face to face with the Japanese army of occupation. The ground is thus set for a tragedy, an explosion is almost certain though the particular spark causing the explosion could not be foretold, nor is it indeed of any great historical importance. Nor yet is it helpful for us to speculate whether or not the Japanese deliberately created an incident; that the incident happens to be helpful to the Japanese Cabinet, we must admit, is in itself no proof that the Japanese first opened fire.

"Now the clash has come, and we hourly read of the charges and counter-charges of atrocities in the best approved manner of the Great European War. We Chinese must feel profound sorrow; if we mourn the murder and mutilation of our Commissioner of Foreign Affairs with his entire staff and hundreds of other civilians and soldiers, we equally mourn and blush with shame also at the atrocities reported to be committed by our troops on defenceless Japanese citizens. Probably in the heat and passion of the moment, neither side is guiltless.

"But what of the future? The best minds of China and Japan should be devoted to localize the conflict, to bring about peace not to contrive at winning a war. The European War with its lessons is too close to us; if the debate has not ended on who started the Great War, it is equally uncertain who won the Great War. We at least do not want war; it is patent to every one from the beginning that we have nothing to gain by a war with Japan. And we just as firmly believe that in the history of peoples and civilizations it is not always the race with the best shock troops that win in the end.

"Let Nanking and Tokyo therefore come together and order cessation of further fighting, and allow an impartial bribunal to investigate facts and apportion responsibility where it should rest. Let the guilty be punished, without fear or favor, be he Chinese or Japanese. Let there be an end to jingoism and mutual propaganda which is self-intoxicating. Only thus, I think, can the leaders of both nations justify themselves before their peoples and before world opinion in this crisis."

## The Appeal to the League

There are only a few more documents with regard to the Tsinan Incident which made the record complete up to the moment of publication. The first is Nanking's appeal to the League of Nations:

Following is a communication addressed to Sir James Eric Drummond, Secretary-General to the League of Nations, by

General Tan Yen-kai, Chairman of the Nationalist Government Council:—

"Sir Eric Drummond,

"Secretary-General of the League of Nations,

"Geneva.

"On behalf of the Nationalist Government of the Chinese Republic, I, the chairman of the said Government, beg to draw your attention to the grave situation which arises from the despatching of large numbers of Japanese troops into the Chinese Province of Shantung, and their hostilities committed therein which amount to acts of war against China.

"On May 3, the Japanese troops at Tsinan, Capital of Shantung, fired upon Chinese soldiers and civilians without any provocation on the part of the latter, and then set gunfires on surrounding residential quarters with the result of more than one thousand casualties. What is more horrible is that a party of Japanese soldiers invaded the office of our Local Commissioner of Foreign Affairs at Tsinan, arrested him, and after having his ears and nose cut, shot him together with the members of his staff to death on the very spot.

"On May 7, the Japanese military authority at Tsinan sent a note with unreasonable and impossible demands to our Commander-in-Chief and set twelve hours for reply. Without waiting for our reply, the Japanese troops again started warlike actions in a more extensive scale, which have not ceased at the time of wiring. Besides, more Japanese landed and naval forces are being despatched to Chinese territories. In spite of all this, our military and civil authorities have throughout the time acted with utmost self-restraint in conformity with government orders.

"I, hereby, take the liberty to call your attention to the fact that the territorial integrity and political independence of China have been ruthlessly violated and the peace of nations is threatened by the aggression on the part of Japan. You are urgently requested to summon a meeting of the Council of the League in accordance with Paragraph 2 of the Article XI of the League Covenant. It is earnestly urged that the League shall request the cessation of hostilities on the part of Japanese troops and their immediate withdrawal from Shantung. As regards the final settlement of the whole affair, the Nationalist Government being fully conscious of the righteousness of its cause, is prepared to agree to any proper arrangement for an International enquiry or Arbitration.

(*Signed*) "TAN YEN-KAI,

*Chairman Nationalist Government Council.*"

## Appeal to President Coolidge

Then there is Nanking's appeal to the President of the United States:

"SIR,—As Chairman of the Nationalist Government of the Chinese Republic, I take the liberty to draw your attention to the fact that Japanese troops have invaded Shantung and are actually waging war against China.

"They have murdered our Commissioner of Foreign Affairs and his staff, and repeatedly fired upon our civilians.

"More Japanese troops are still being despatched to said province.

"We have throughout exercised the utmost self-restraint, trusting that the cause of International Peace and Justice is the common concern of civilized nations. Our people all remember that the final settlement of the Shantung question was effected through the good offices of friendly Powers, especially the United States of America. We desire to know the attitude of the American Government and people towards this grave situation created by Japan.

(Signed) "TAN YEN-KAI,

"*Chairman, Nationalist Government Council.*"

The Japanese *Toho News Agency* issued the following which may be accepted as authentic:

## The Ultimatum to General Chiang

Tokyo, May 15.

General Chiang Kai-shek's reply to the Japanese army in Tsinan was the subject of an important conference, at the Foreign office yesterday, between the authorities of the Foreign, War and Navy Offices. The conference lasted eight hours.

It is understood that the following military demands were decided upon, and that instructions were telegraphed accordingly to Lieut.-General Fukuda, Commander of the Japanese forces in Tsinan, with the approval of the Cabinet meeting to-day:—

(1) Official apology by General Chiang Kai-shek.
(2) Severe punishment of General Ho Yao-tzu * and several other Southern commanders who are responsible for the outrages in Tsinan.
(3) The Southern troops who were disarmed and are now detained by the Japanese troops will be set free forthwith. Their arms will be returned at a future date, as found proper.
(4) Not only is fighting between Northern and Southern troops not permitted within a 20 li radius of Tsinan and Tsingtao and within 10 li on each side all along the Kiaochow-Tsinan Railway, † but Chinese armed soldiers, propaganda and military equipment will not be permitted in the above-mentioned areas until the situation has completely quieted down.
(5) For the purpose of conducting negotiations with the Commander of the Japanese forces, the Chinese representative shall produce General Chiang Kai-shek's official letter of authorization.

As to the damage suffered by Japanese residents and troops, the required compensation and apology, the Government, it is understood, intends to open negotiations with the Nanking Government.—*Toho.*

## Use of the Shantung Railway

Tokyo, May 15.

At a Cabinet meeting to-day, held to discuss the conditions under which Southern troops are to be allowed to pass through Tsinan Station, it was agreed that:—

"As the Japanese Government has no intention whatever of obstructing the northward advance of the Southern troops, it will allow Southern troops to pass through Tsinan Station and proceed northward by the Tientsin-Pukow Railway if the Southern authorities show sincerity towards Japan, accept the five demands presented by the Japanese Army in Tsinan and give assurances that Southern troops do not harm Japanese and other foreign residents in future, though Japan cannot permit any Chinese troops to cross the Kiaochow-Tsinan Railway in view of the necessity of maintaining communications between Tsinan and Tsingtao."

Immediately following the Cabinet meeting, General Suzuki, Chief of the General Staff, gave telegraphic instructions to Lieut.-General Fukuda, Commander of the 6th Division in Tsinan.—*Toho.*

## Japan Preparing Statement for League of Nations

Tokyo, May 15.

The Foreign Office has stated that a memorandum for the information of the League of Nations is being considered, but its nature and time of presentation have not been decided on.

It is understood that officials are at present busy collecting evidence for the purpose of refuting the allegations of the Chinese with regard to the cause of the incident.—Reuter.

## The Truce

Finally, we publish Marshal Chang Tso-lin's appeal to the troops which was ignored by the Nanking Government:

## Northern Troops Ordered to Cease Hostilities

Later.

Generalissimo Chang Tso-lin's circular telegram was sent this evening to all the leading civil and military authorities of the North and South.

The Dictator declares that civil war has been going on for several years and that communists have been attempting to ruin the country.

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* He has already been dismissed

† This has been done

"I have always apprehended that civil war might impair the friendly relations between China and other nations," he says. "Unfortunate incidents have happened at Canton, Hankow, Nanking and Tsinan. In view of the situation I have ordered my troops to cease hostilities in order to save the country.

"It is highly regrettable that foreigners have been involved in our domestic struggles. If this state of affairs is allowed to continue, I shall be unable to face the whole nation as well as the friendly Powers. In view of this situation I have ordered my victorious troops at Changteh and along the Shansi Railway to cease hostilities immediately.

"As regards national politics, I will not be insistent if our people can agree on a fair and impartial decision. The question of right or wrong rests with the people.

"I have been in military service since my youth. As an old resident in Manchuria I know perfectly well the evil influence of communism and the preventive measures taken by other nations. Indeed, I feel that my personal experience in that line qualifies me for a better view of the whole question than many prominent men of the country."

"Civil war has been going on for several years since the communists attempted to ruin the country.

"The South-Eastern Provinces in China have repeatedly undergone indescribable sufferings, of which I have heard a good deal, invariably with a feeling of pain.

"I could not bear to see the bolshevization of the nation and, responding to the call of Providence, I determined to lead my troops in a campaign against Bolshevism.

"From the beginning I declared that I would regard my personal foes as friends if only they concurred with me in the suppression of Bolshevism. On the other hand, I made up my mind to deliver a decisive blow to communism with a view to its total elimination. Wherever my troops went strict orders were issued for the maintenance of discipline and for the protection of the lives and property both of Chinese and foreigners, for I have always apprehended that civil war might affect diplomacy and thereby impair China's friendly relations with the Powers.

"Knowing that certain traitors, deeply imbued with the idea of communism and ignorant of the consequences in its wake, were sure to bring havoc to the country, I considered the extermination of communism necessary and desired extreme caution in diplomatic dealings as the sole means of attaining our independence.

"At present there seems to be no end to civil strife and the ship of State is sinking rapidly. I hope the people will come to their senses and save the country from destruction. This, briefly, is my appeal, and I hope to hear from you all.

(*Signed*) "CHANG TSO-LIN"—Reuter.

# The Decline of the Nationalist Government

*By George E. Sokolsky*

ACCORDING to the principles of the Kuomintang, the Northern Expedition is an absolute necessity to conform with Dr. Sun Yat-sen's principles. The First stage of the Revolution can only be completed when Peking shall have been captured by the Nationalist armies. We may discuss *ad infinitum* the futility of this military enterprise, but if Dr. Sun's precepts mean anything at all, his followers will continue to follow his Three Stage Revolution. Now we are in a period in which two stages appear simultaneously: the first stage in North China, which the revolutionary armies are invading; the second stage in such provinces as Kuangtung, Chekiang, Hunan and Hupeh, which are settling down to reconstruction.

In any territory which is in the first stage, the Commander-in-Chief of the Nationalist armies has dictatorial powers. He transcends military control and exerts political powers. In second stage areas, the Commander-in-Chief has very little influence; for he is nothing more than a member of various commissions. Chiang Kai-shek, however, combines the functions of Commander-in-Chief of the Nationalist armies with those of the Chairman of the Central Executive Committee of the Kuomintang—and that gives him a certain authority even in such territory as is within the second stage of the Revolution. No area in China is recognized as having reached the Third Stage of the Revolution, which is democracy.

Such provinces as Kuangtung, Kuangsi, Chekiang, southern Kiangsu, Hunan, Hupeh and Kiangsi are jealous of their provincial rights and often differ with the Central authority in Nanking, and these provinces are generally within their rights under Dr. Sun's theory of Government, which provides for that looseness of relationships between the provinces and the central Government which is essential in Chinese political practice. Thus, within the Kuomintang, there are not only provincial central organizations, but there are four branch political councils, which function similarly to the Central Political Council in Nanking. These branch political councils are situated in Canton, Hankow, Kaifeng and Taiyuanfu. The fullest development of the second stage has been reached in Kuangtung and Kuangsi, which now devote themselves solely to reconstructive efforts. In Hankow, the second stage is impeded by political opposition in Hunan and the necessity for participation in the Northern Expedition along the Kinhan Railway.

In the first stage territory, General Chiang Kai-shek is free to follow his own political methods. To oppose him means to interfere with the success of the Northern Expedition. He has been given full powers and has promised to occupy Peking by June. If he succeeds, he will be in a strong political position, but will have to submit to a revised authority, for not only will the Central Executive Committee immediately assume authority, but such elements as the Kaifeng and Taiyuanfu branch political councils will have an increased voice in the Government. These councils are headed by Marshal Feng Yu-hsiang and General Yen Shih-shan respectively. Furthermore, the party members who are travelling abroad, who left China because they cannot work with General Chiang Kai-shek and therefore eliminated themselves so as not to hamper the Northern Expedition, will return.

To accomplish his goal, General Chiang has employed not only the military arm, but bribery and political cajolery. The propaganda which marked previous Kuomintang enterprises is now not so effective, as General Chiang fears proletarian propaganda as much as Marshal Chang Tso-lin does, for such propaganda tends to become Left, no matter how orthodoxly it is planned and Left activities must now be opposed to General Chiang who tends increasingly Rightward as he moves to the North.

There can be no discussion of the element of bribery. No one knows who has been bribed and how effective the bribe will be. It will be remembered that both Hankow and Hanyang were taken by bribery, but Wuchang held out; Marshal Sun lost Chekiang through the bribery of Hsia Chao, but Dr. V. K. Ting managed to hold Shanghai, which finally fell through the bribing of Admiral-General Pi Shou-chen, who was shot for it by General

Chu Yu-pu. It is therefore impossible to prognosticate the military events of the next few months, because this element of bribery must remain an unknown quantity until after the events have taken place.

The element of political cajolery can, however, be discussed in some detail. General Chiang has adopted what for the Kuomintang is entirely a new procedure and which many party members regard as exceedingly dangerous and as imperilling the very objective of the Northern Expedition. He has followed a plan of absorbing within the Nationalist Movement such Northern elements as are foot-loose but which have important political followings. Thus, in Northern Kiangsu, Shantung, Honan, Chihli, and Peking itself, northerners, persons who are not members of the Kuomintang and who may even be generally and broadly opposed to the basic principles of the Kuomintang, are being won over to General Chiang's cause on the assumption that a Nationalist victory is inevitable and that they might just as well be on the right band-wagon. These foot-loose politicians are no better nor worse than those who have jobs in Peking and therefore there is some advantage in using such personalities, but there is the disadvantage that every accretion of ordinary, untrained post-dynastic politicians dilutes the Nationalist movement just so much. If enough of the classical Peking politicians can be absorbed in the course of the Northern Expedition and if enough of them are able to obtain pivotal positions in the Government, the Nationalist Government will have been conquered by the North even if their armies are altogether successful in their military enterprises.

Now this implies two dangers: one, that the character and form of the new Nationalist Government will in no way differ from the character and form of the Peking Government which has developed since Yuan Shih-kai, and secondly, that those branch political councils which are constantly gaining in strength during their second stage recess from military activity will refuse to recognize the conquered Peking as a genuine Nationalist central Government and will begin the fight all over again.

The Nationalists have not succeeded in establishing a modern governmental machine, but the purpose has been there and even if the ministries have been hampered by an inefficient and confusing committee system, they have learned to be responsible to group ideas and group control, which is a step towards democratic control, at any rate, of the policy of the Government. Chinese and foreigners have found the slowing-up process of party government irksome, particularly when they have seen reconstructive plans of the ministries delayed or never carried through because of party interference with the ministries, but without such a check, Nationalist policy would be as whimsical and uncertain as that which has brought Peking to its present collapse.

In some of the ministries, the chiefs of departments, at any rate, have envisaged the possibilities of modern efficiency in government and they would have accomplished much more were it not for the ruinous exactions of the military during the Northern Expedition, but the fact remains that jobs are being done; roads are being built in all provinces; education, which had completely collapsed during the 1924-7 period, is being reorganized and extended; taxes are being consolidated and efficiently collected in some areas; the routes of commerce are being re-opened.

Nationalist ministers are all confronted with the problem of finding men of talent who will not revert to the Mandarin type. It is often heart-breaking to put a fine, modern-looking man on a job, only to find that his office soon resembles a Yamen, that he resists modern methods of accountancy and modern implements, that he tolerates leaks rather than smash rice-bowls and spoil "faces," that he blinks at corruption rather than place his own future in jeopardy. For most of the non-political administrators feel that their futures are before them and that there is no sense in making too many enemies. Yet, the fundamental task of a Nationalist official must be to make enemies daily, for he is destroying century-old methods, is attacking subversive financial activities and is instituting system where hitherto there was only chaos. No matter how much the ministers keep these ideals before their staffs, the traditions of Mandarism are so strong that after each "new broom period," there seems to follow a reversion to type.

Mandarism, then, has become one of the principle issues between the liberals and the reactionaries within the Kuomintang. The liberals maintain that if after the Northern Expedition, there is a reversion to Mandarism in administration, the sacrifices shall have been made in vain, for one Mandarin is as good as another. The people, they hold, are expecting the Kuomintang to establish a modern government. They are allowing themselves to be taxed outrageously in the hope that out of it all will come a modern government, that is, one from which the people have a right to expect that a very large share of the revenues will be expended for the benefit of the people.

Furthermore, it is increasingly being realized that the term "equality" does not represent a fictitious assertion of "equality" but that it definitely means that the Government shall so function that the man-power and resources of this huge country will be utilized in such a way that statistically and visually China shall have become an equal in fact of countries of similar man-power and resources. The liberals reiterate constantly the obvious fact that failure to achieve more than Mandarinism by the Northern Expedition will lead to such disappointments that the youth and the peasantry of the country will unite in protest against taxes uselessly paid and a Governmental system which does not achieve fundamental "equality."

The seriousness of such a possibility the military mind cannot envisage because he believes that his soldiers can suppress everything that he terms "Communism." But the history of other countries clearly proves that when physical conditions have become sufficiently unbearable, the soldiers support their own people against victory-surfeited rulers.

General Chiang then is making the vital error of believing that he can assimilate Mandarinism by simply including the Mandarins in the Nationalist Government. He makes this sacrifice because he anticipates that it will lessen the difficulties of the Northern Expedition. He makes it as a military measure. But he imperils the task of reconstruction—the Third Stage of the Revolution, which in its essentials implies a return to civilian Government, to such a use of government machinery as is made in western countries and Japan.

From many standpoints, Mandarism has a better chance of success than Liberalism (for want of a better term) because the vested interests will favor Mandarinism and the Mandarin can always afford to play politics because he enriches himself during his tenure in office. While, Liberalism means a definite sacrifice, the working of a job for the mere salary that it brings, the devotion to administration without participation in politics, just as a permanent civil service official in England or America does his daily work without political considerations.

Even the Liberals become polluted by Mandarinism when ever the Mandarin is present in a Ministry, just as bad money sends good money to the melting pot. Mandarinism in the Kuomintang, therefore, must include the possibility of the failure of the whole of Dr. Sun Yat-sen's program. Borodin realized this and ever insisted upon a small, disciplined Kuomintang, which could be handled effectively by a Central Executive and which would not betray the Party from sheer fear of death.

The presence of the Mandarins is having the effect of driving men of character and ability to the branch political councils, particularly those of Canton and Hankow. Furthermore, there seems to be a tendency for Kuomintang workers to return to their native provinces and to labor there is the interest of their own people. This tendency further weakens the central administration, which is already poor in personnel and which is more and more depending on outsiders, untrained in Kuomintang ideology, for pivotal administrative positions. Whereas both Hankow and Canton can boast important Nationalist personalities, Nanking is more and more taking on a usual Northern complexion. And although it must be admitted that the northerners have a longer and wider governmental experience, entirely Mandarinized, however: yet Nanking does not attract outstanding Northern personalities but rather an uncertain type, which has been politically mobile for many years. Nanking also attracts a curious semi-political type, known only in China, which usually plays about the edges of political activity and gathers the broken meat. Such persons have been given pivotal positions in Nanking.

If the central administration is to be weak and of a non-Kuomintang character and if the branch political councils are to be strong and of a Kuomintang character, there is bound to be trouble in the event of the success or failure of the Northern

Expedition. In the event of success, the branch political councils will demand a purification of the Government and a dismissal of Mandarins, which General Chiang may not be able to accomplish. There will be more wars. In the event of failure, they will blame the presence of the Mandarins for the failure, and there will be a changing in the character of the Nanking Government while the war is amid streams.

The Nanking Government has replied to this criticism by the following:

> The Central Executive Committee of the Kuomintang has issued an order, addressed to all Party members, re-emphasizing the importance of their unquestioned obedience to Party instructions and a united effort in striving for the welfare of the Party and the country at this critical time of the progress of various Party affairs. All members are strictly forbidden to advocate any policy alien to the Kuomintang or oppose any measure now being put into execution by the Party. They are instructed to abide by the decision of the Central authorities and to observe the discipline of the Party. No seditious act will be tolerated, the order concluded.

This may be sound from a military standpoint, but is exceedingly bad politics, for it drives Liberalism to the Left.

The Tsinan Incident fully proves the dangers to Nationalism of permitting Mandarinism to have free play. The preceding article on Tsinan indicates how Mr. Huang Fu brought confusion and disaster to the Nationalists upon the eve of their victorious advent into Peking. But Mandarinism has done even greater mischief: it has stolen the victory from the Nationalists and has placed Marshal Feng Yu-hsiang at the forefront of military activity. On May 6, at a conference in Hsuchow, it was decided, according to the *Kuo Min News Agency* that:

"The Tsinan Massacre has necessitated a division of labor between General Feng Yu-hsiang and Commander-in-Chief Chiang Kai-shek in the present situation.

"According to reports from the Headquarters here, it has been definitely decided that General Feng will take up his residence at Tsinan to assume charge of the rear and deal with the Japanese, while Commander-in-Chief Chiang Kai-shek will resume the direction and prosecution of the Northern Punitive Expedition till the Northern militarists are exterminated."

This decision has, however, been ignored. Marshal Feng's lieutenant, General Sun Liang-chen has been appointed the head of the Shantung Provincial Government. In an article in the *North-China Daily News*, I describe this situation as follows:

The immediate political question in Nationalist and other Chinese circles is whether the loosely-bound confederation of self-interest among the various components of the Nationalist armies will continue after any one of the units reaches Peking. The principal units of the Nationalist armies are led by General Chiang Kai-shek, General Yen Hsih-shan and Marshal Feng Yu-hsiang. Although all these units theoretically recognize the authority of the Commander-in-Chief, who is Chiang Kai-shek, they have never actually been merged into one body. Each of them has retained its individuality and its own civilian and military organization. Marshal Feng has, to a certain extent, participated in the Nanking Government, as several of the high officials there are his men, but General Yen has been aloof, rather an ally than one of them. Although Nanking is the centre of the Nationalist Government and all authority should be derived from it, both Yen and Feng have acted largely on their own, of the assumption that distances are so great and communications so poor that a commander must do what he sees fit to do without waiting for instructions from the capital.

General Chiang Kai-shek is a product of the Nationalist revolution. He has no political existence except as a member of the Kuomintang. No matter how mixed his motives may be or may have become, he is still part of the Kuomintang, even if the part he most actively represents should be reactionary. Marshal Feng Yu-hsiang is not a product of the Kuomintang. He is a product of northern militarism. When the Kuomintang was struggling for existence in Canton, he was fighting as an underling of Marshal Tsao Kun and as the associate of Marshal Wu Pei-fu. Whatever he has accomplished, whether for good or evil, has been without the assistance of the Kuomintang. He owes little to the Party and has not, to an appreciable extent, come under its influence. He talks of the "Three People's Principles," but so did he once talk of the Bible. Both are equally remote and equally useful in his propaganda and in maintaining discipline among his troops. Whatever good may be said of him was said long before he became associated with the Nationalist Movement; similarly, his reputation for irresponsible associations was made before then. He did not leave Tsao Kun and Wu Pei-fu to join the Kuomintang; that came apparently as an after-thought.

Governor Yen is similarly situated, only more so. He has held Shansi since the founding of the Republic 17 years ago. He held it under every administration in Peking, without the assistance of the Kuomintang. He has been fighting Marshal Chang Tso-lin more as an ally of Marshal Feng Yu-hsiang than as an associate of the Nanking Government. The Kuomintang has not helped him to hold Shansi; it could not have prevented him from holding that province.

Were the Kuomintang the powerful, closely-knit, thoroughly organized body that Borodin made it, there could be little question but that Party propaganda would have been effective in forcing these two powerful members of the confederation of militarists to abide by its will. But the Kuomintang is, at the moment, moribund. Its activities have been so circumscribed by Nanking, its spirit has been so broken by military repression, that it has become little more than a memory to most Chinese officials and only a hope to a small group of recalcitrant men who still cling to the hope that they will restore its power and prestige among the Chinese masses. Only the extreme Left Wing of the Party has vitality and it is being goaded to activity by the constant assumption that the Communist Party will sooner or later take the place of the Kuomintang in Chinese affairs. The Right and Centre have degenerated into adulatory tuchunism. In such a situation, the activities of the Party in forcing Feng Yu-hsiang and Yen Hsih-shan to bend to the will of Nanking can be altogether discounted. They will suppress the Party in their territory as counter-revolutionary and arrest its leaders as secret C.P.'s.

The relationships of these men will become clarified when the attempt is made by the Kuomintang to retain Nanking as the capital. Marshal Feng and General Yen will insist that it is more practicable for Peking to be the capital, even if temporarily. Nanking will insist that Sun Yat-sen had designated Nanking as the capital. All this display about the capital will be a mere camouflage to cover a basic struggle for power between Marshal Feng Yu-hsiang and General Chiang Kai-shek. Although both Canton and Hankow have been unfriendly to General Chiang Kai-shek, in the course of such a struggle they will support him. For, after all, he is one of them, while Feng Yu-hsiang is an outsider. Both Canton and Hankow have already resented the influx of Northerners into the Nanking Government. They have not taken a single step to assist in the Northern Expedition, but similarly, they have done nothing to impede its progress. General Li Chi-sen, even came to Nanking against his better judgment because General Chiang Kai-shek wanted the appearance, if not the substance, of harmony. If Marshal Feng attempts to set up a Government under his domination, once the Northern Expedition is an accomplished fact, the military men, at any rate, of the Kuomintang will resist him and they will have the support of the civilians.

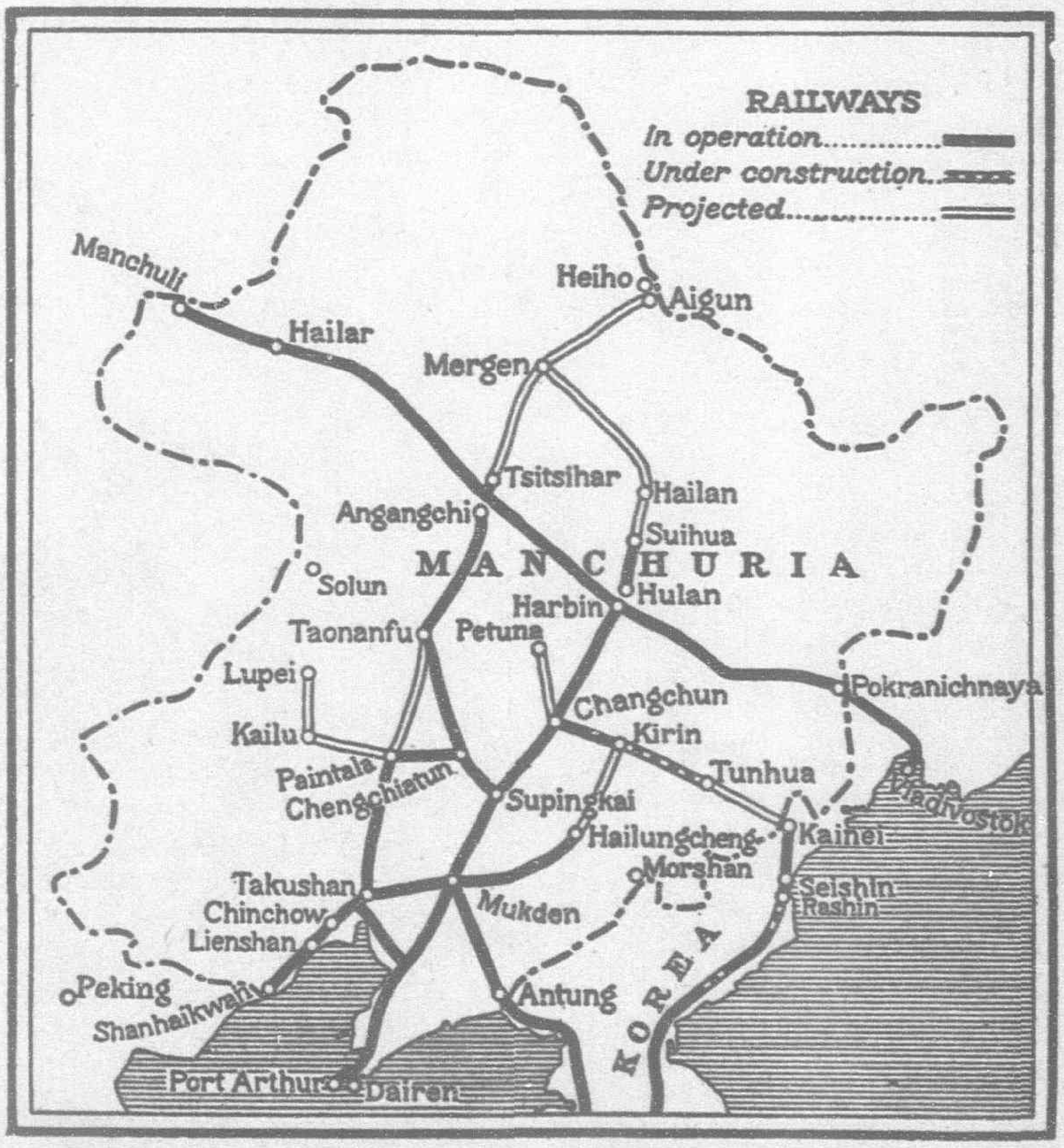
There is much sympathy for General Chiang Kai-shek among Nationalists, in spite of his reactionary methods and his confused statecraft. He and his armies were rapidly advancing northward. They were in the first ranks. Marshal Feng Yu-hsiang was bringing up the rear and General Yen was making no progress. To-day, Marshal Feng is fighting through southern Chihli and General Yen is on the verge of taking Peking, while General Chiang Kai-shek sits in Hsuchowfu and his armies are holding Feng's rear. Such a disposition of priority cannot altogether be attributed to the Tsinan Incident. The Chinese believe that the Japanese took advantage of circumstances to interfere with the Northern Expedition, but is it not also a fact that both Marshal Feng and General Yen took advantage of the Tsinan Incident to eliminate General Chiang Kai-shek from the race to Peking? He was to enter that city as the victorious commander of the Nationalist army; now, he can only come as the guest of either Marshal Feng Yu-hsiang or General Yen Hsih-shan. Yet, they can only take Peking, because the Nationalist armies which had marched out of Canton in the summer of 1926, had made that possible.

# Manchuria: the Crux of Chino-Japanese Relations*

*By K. K. Kawakami*

IN presenting an unbiased picture of Japan's attitude towards China certain general conclusions may be set forth at the beginning. First, Japan has definitely renounced aggressive or imperialistic designs such as were apparent in her attitude between, say, 1915 and 1919. Secondly, whether her government be conservative or liberal, there is a certain limit beyond which she will not go in relinquishing her rights and interests in China; in determining that limit she will always be guided by her sense of self-preservation, born of over-population and her lack of natural resources, and intensified by her past experiences with neighbors who sometimes have concocted what seemed sinister designs against her. Thirdly, Japan is not unsympathetic, much less antipathetic, towards China's nationalistic aspirations, but she insists that China's foreign treaties, however unilateral or unfair, must not be repudiated in a Bolshevist fashion but must be revised through due process of diplomacy. These, quite apart from the writer's personal sentiments and prejudices, seem to be the essential features of Japan's present policy towards China.

Baron Giichi Tanaka, Premier and Foreign Minister



The Manchurian Railway System.—The Chinese Eastern Railway runs from Manchuli to Pokranichnaya (Suifenho), and also includes to branch line from Harbin to Changchun

The turning point in Japan's course was the Washington Conference of 1921-22, where her acts during the preceding decade were scrutinized under the most critical eyes alike of friends and enemies. Indeed it may be frankly admitted that one of the main objects of the Conference was to curb Japan's activities and influence in China. Not that those activities were unprecedented or unparalleled in the game of international politics, but rather because she had brought down upon herself the enmity of the world by making hay while the sun shone only on her part of the planet. At any rate, she faced the music with what grace and dignity she could, and she made up her mind then and there to set her Chinese policy upon a new basis. Her alliance with England was dissolved, her troops were withdrawn from Siberia and from China, the interests she had acquired in Shantung were surrendered in China's favor, "Group V" of the so-called "Twenty-one Demands" of 1915 was unequivocally renounced, she liberalized her rule in Korea, and she gave up certain preferential rights in regard to Manchuria. In short, she surrendered all she could without jeopardizing what she considered essential to her own national security.

To be frank, these renunciations were made rather reluctantly. The Washington Conference and its accomplishments were not popular with the Japanese, some of whom looked upon them as a deliberate scheme to persecute their country. But the Japanese leaders accepted the inevitable ungrudgingly, and at once set to work to readjust Japan's position in meticulous observance of the agreements made at Washington. Soon after the Conference Admiral Baron Kato, who had headed the Japanese delegation at that historic parley, was chosen Premier as the man best able to carry into effect the spirit and letter of the Washington treaties. He proved himself equal to the task. Admiral Kato's Cabinet was followed by the Yamamoto and the Kiyoura Cabinets, both "stop-gap" and short-lived. Then came Count Takaakira Kato's Cabinet; it lasted three years, during which Baron Kijuro Shidehara (who had played an important rôle at the Washington Conference) directed Japan's foreign relations. Shidehara's foreign policy was characterized by moderation and friendliness, especially in regard to China, and whatever may have been its shortcomings in other fields it was in no small degree instrumental in re-establishing Japan in the confidence of the world and giving her again a place in Chinese friendship.

To-day, six years after the Washington Conference, few Japanese question the benefit it has conferred upon their country. Suppose that it had not terminated the Anglo-Japanese Alliance, that it had permitted Japan to remain in Shantung, that it had not led to her troops being withdrawn from Siberia—what would have been her international position to-day? Surely she would have been made to bear the brunt of China's vitriolic anti-foreign agitation, and she would have had no end of trouble with

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* Foreign Affairs, an American Quarterly Review.

**Mr. J. Yamamoto, President of the South Manchuria Railroad**

Soviet Russia. In Europe and America, moreover, she would have been looked upon with suspicion and enmity. After all has been said and done, therefore, the policy of moderation followed by Admiral Baron Kato's Cabinet in the wake of the Washington Conference, and accentuated by Baron Shidehara in Count Kato's Cabinet, has served a useful purpose. But for the growing chaos and anti-foreign violence in China that policy would never have been seriously criticized in Japan, even by the Opposition.

Unfortunately, conditions in China, especially since 1925, have been such as to cause doubt and misgiving on the part of the outside world. Japan, with enormous investments and great industrial enterprises in China, and more and more dependent upon that country for food and mineral supplies, has been particularly anxious. When in March, 1927, a Nationalist or Communist Chinese general committed an outrage against the British, American and Japanese Consulates and residents in Nanking, many a Japanese became skeptical as to the wisdom of continuing indefinitely the policy of friendliness which had been pursued by Shidehara. The Opposition, the Seiyu-Kai party, seized upon the incident and assaulted with redoubled energy what it had dubbed the "weak-kneed" diplomacy of the Cabinet. It had coined the appealing catchword of a "positive policy"—a positive policy both for domestic affairs and for the Chinese situation. The rank and file of the people, not knowing what Baron Shidehara and his policy of tolerance were driving at, were inclined to lend ear to this professedly new policy. And yet the Cabinet might have weathered the storm had it not been for the embarrassment caused by the financial crisis which had come to a head after a protracted period of depression following the post-war slump and the earthquake disaster of 1923.

It is a matter for speculation how much longer Baron Shidehara would have followed his policy of friendliness if he had remained at the Foreign Office. Many believe that even to him the Nanking outrage was the last straw, and that he would have been forced to take the necessary measures to forestall the possible repetition of similar incidents at Tsinan and Tsingtao. As a matter of fact, he had already established a precedent for such action when in December, 1925, he dispatched troops to Mukden and its vicinity in order to protect the South Manchuria Railway and the Japanese residents in the railway zone against the military upheaval caused there by General Kuo Sung-ling's revolt against Chang Tso-lin, war lord of Manchuria. When Japan's vital interests in China are seriously threatened even a liberal cabinet cannot sit with folded arms. Rightly or wrongly, the Japanese, with the exception of a small minority, are agreed that those interests, especially in Manchuria, cannot safely be relinquished. If those interests can be preserved in a friendly way, well and good, but if friendly policy fails to protect them, some other means must be devised. That, in brief, is the prevailing sentiment. No Cabinet which ignores this sentiment can long withstand public pressure.

True, the cabinet change of April, 1927, was primarily caused by the Government's alleged mismanagement of national finances. But it is also true that the public had become uneasy about Baron Shidehara's Chinese policy of "watchful waiting." As soon as the Seiyu-Kai, led by Baron Tanaka, assumed the reins of government, the new Cabinet summoned the Japanese Minister and Japanese Consuls in China for a conference on the Chinese situation. At its end Premier Tanaka summarized its findings as follows.

> "1. The stabilization of the present chaotic political situation in China and the restoration of public safety should be attained by the Chinese themselves, not by foreign Powers nor with their help. The Japanese Government, therefore, thinks it the part of wisdom not to interfere in the Chinese civil war or in the domestic political quarrels in China. Japan should also respect public opinion in China.
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> "2. The Japanese Government will co operate with other Powers to meet the reasonable demands advanced by such of the Chinese people as entertain moderate ideas in regard to China's rehabilitation. Japan has genuine sympathy for China, and earnestly hopes that she will make a steady economic development. Japan, in conjunction with other Powers, will co-operate with China to this end.

**Mr. Y. Matsuoka, Vice-President of the South Manchuria Railway**

"3. The realization of the above desiderata depends upon the establishment of a strong central government. This cannot be expected for the time being in view of the prevailing chaos. Japan, therefore, will wait for the formation of a moderate cabinet by the co ordination of moderate factions in the various provinces.

"4. Japan's policy as above outlined will remain the same whether the possible new central government of China be organized by the coalition of the Northerners and the Southerners, or by factions of a certain local origin. In the event of the appearance of such a central government, Japan, with other Powers, will support it, whether it be located in the North or in the South.

"5. Agitators and unruly elements, taking advantage of the present chaos, have been actively engaged in causing trouble. Japan will rely upon China's own efforts to control these elements. But should Japanese lives and property in China be endangered, Japan might be forced to take the necessary measures for their protection.

"6. Peace and order in Manchuria and Mongolia have a vital bearing upon Japan's national existence and national defense. The Japanese Government, therefore, feels itself responsible for the maintenance of peace in these regions not only in view of Japan's special position there, but also in the interest of China herself."

The policy of non-interference enunciated in the above conclusions is nothing but a reiteration of the policy Japan has followed in China since about 1920. Certainly it makes no departure from Shidehara's policy. But it is in regard to Manchuria and Eastern Mongolia that Premier Tanaka's statement claims our particular attention. Conditions in those regions, he says, "have a vital bearing upon Japan's national existence and national defense," and therefore, Japan "feels herself responsible for the maintenance of peace and order there." Evidently Premier Tanaka, viewing the complexity of Chinese politics, is resigned to let China proper stew in its own juice, but he declares he cannot sit quiet under the impending danger of having the civil war spread into Manchuria and Eastern Mongolia, for it is there that Japan turns for essential raw materials, and that she has many enterprises involving great investments.

Perhaps a concrete demonstration of Japan's Manchurian policy, especially as followed by the Tanaka Cabinet, may be seen in the parley which has been going on between Tokyo and Peking since last August. In this parley Japan is not trying to obtain any new privileges, except permission to open a consulate at Morshan (Linkiang) on the Manchurian side of the Yalu River. This consulate question is not as important as either the leasing or the railway question. As for the other rights, they were conceded to Japan many years ago, some as far back as 1905, but upon one excuse or another China has either ignored or violated them. The most important are those relating to the railways, the efficient operation of which is essential to Japan's food supply and her industrial existence.

First, then, let us consider the South Manchuria Railway, which overshadows in importance all other Japanese enterprises in Manchuria. In December, 1905, the Chinese Government, in a protocol annexed to a convention, signed the following agreement:

"The Chinese Government engage, for the purpose of protecting the interests of the South Manchuria Railway, not to construct, prior to the recovery by them of the said railway, any branch line in the neighborhood of and parallel to that railway, or any branch line which would be prejudicial to the interests of the above-mentioned railway."

The protocol was called "secret" by Western writers as it did not appear in the Japanese Government's official Book of Treaties. However, authoritative foreign publications contained it, while the Japanese Government itself frequently referred to it. The above restrictive provision had its first test in the Hsinmintun-Fakumen railway project broached in 1907 by the Chinese Government and a British firm named Pauling and Company. On that question the London *Times* commented significanlty:

"Japan's right to veto the construction of a competitive line cannot be disputed either by China, who signed the protocol of December, 1905, or by Great Britain, to whom the protocol was communicated without her raising objections. . . . There is little doubt that one of China's objects in handling the Manchurian question has been and is to create friction between Japan and other Powers. By giving to the British the contract of the Fakumen railway after having been informed that Japan would regard the scheme as a violation of the protocol of 1905, China doubtless hoped to embroil Great Britain with Japan."

Thus the Fakumen project was abandoned. During the past year or two China, or rather Chang Tso-lin's Government at Mukden, has been building "parallel" lines to the South Manchuria Railway on a much greater scale than was projected in 1907. One of these lines is to connect Mukden and Kirin *via* Hailungcheng, and the other Takushan and Taonanfu *via* Paintala. Both, in spite of Japan's repeated protests, have been more than half constructed. Now the important question is whether Japan's right to veto such projects is unreasonable. It certainly was not unreasonable when it was obtained in 1905. Japan had fought China's battle as much as her own. Had she not accepted the Russian challenge it was plain that the whole of Manchuria and even north China would have become Russian territory. Nor should it be forgotten that China had secretly contracted with Russia an offensive and defensive alliance, and thus extended clandestine assistance to the Muscovite with whom Japan was engaged in a struggle that cost her 100,000 lives and a billion dollars. Had the nature of the Chino-Russian secret alliance been fully known Japan might have been justified in demanding from China more substantial rights than she actually did. This secret treaty had never officially been divulged until China was forced to bring it out at the Washington Conference. The telegraphic summary of the document, as submitted to the Conference by the Chinese delegation, was as follows:

> "Article I. The High Contracting Parties engage to support each other reciprocally, by all land and sea forces, at any aggression directed by Japan against Russian territory in Eastern Asia, China or Korea.
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> "Article II. No treaty of peace with an adverse party shall be concluded by either of them without the consent of the other.
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> "Article III. During military operations all Chinese ports shall be open to Russian vessels.
>
> "Article IV. The Chinese Government consents to the construction of a railway across the provinces of Amur and Kirin in the direction of Vladivostok. The construction and exploitation of this railway shall be accorded to the Russo-Chinese Bank. The contract shall be concluded between the Chinese Minister at St. Petersburg and the Russo-Chinese Bank.
>
> "Article V. In time of war Russia shall have free use of the railway for the transport and provisioning of her troops. In time of peace Russia shall have the same right for the transit of her troops and provisions."

In securing a right to veto the construction of lines parallel to the South Manchuria Railway, Japan simply emulated examples set by other Powers. Long before the Chino-Japanese convention of 1905 the Western nations interested in railway enterprise in China had imposed much the same obligation upon the Chinese Government. I shall cite only one example—that of the American-China Development Company, organized by American financiers for building a railway from Hankow to Canton. Its agreement with the Chinese Government in 1900 provides that, "Without the express consent in writing of the Director-General and the American Company, no other rival railway detrimental to the business of the same is to be permitted, and no parallel roads to the injury of the latter's interest, within the area served by the Canton-Hankow main line or branch lines."

Apart from the legal aspect of the question, is it wise for Japan to exercise the veto? Times have changed. The South Manchuria Railway has become a firmly established, efficiently administered, highly profitable institution. With Chinese migrating into Manchuria in increasing numbers, with the country's natural resources developed rapidly, is it not possible that new railways, by whomever built, will redound to the mutual benefit of the existing Japanese and Chinese systems? This point seems to be recognized by the South Manchuria Railway itself. Mr. Yosuke Matsuoka, Vice-President of the Company, made a statement a year ago to the following effect:

> "The development of Manchuria and the increase of its products are going on at such a pace that the apprehension that bitter competition will occur between the Russian, the Japanese and the Chinese railway interests will be found without

grounds. With the country developing at this rate, its railways, both existing and under construction, will have all the traffic they can handle. . . . The Japanese Government and the South Manchuria Railway, in dealing with the question of parallel railways, are concerned mainly with the principle that existing treaties and agreements, as long as they are binding, must be observed. Once this point is recognized, the question of constructing projected Chinese railways will be comparatively easy to settle."

The point at issue, then, is not whether China shall or shall not be permitted to build parallel lines, but whether she shall recognize the 1905 agreement. If she recognizes it and consults Japan in a friendly spirit before embarking upon the construction of such lines, Japan will respond in a like spirit.

Another important Manchurian railway question which Japan is now endeavoring to solve is the building of a line which will connect Kirin, the capital of a province bearing the same name, with Kainei (called Huining by the Chinese) on the Korean side of the border line. In September, 1909, Japan concluded a convention with China whereby the latter agreed to the construction of that line with the South Manchurian Railway as contractor. The railway so far extends to Tunhua on the way to the Korean border. What Japan is asking is merely the extension of the railway another hundred miles or so, so that it can effect a junction with the Japanese railway leading to the Korean port of Seishin (or Rashin as a second choice), the nearest outlet for Kirin province and the adjacent interior regions of Manchuria. Japan is eager to complete this system in order to secure access to the agricultural, mineral and timber resources of those regions. In an effort to solve their population problem by industrializing their country, the Japanese are developing, gradually but steadily, a network of land and sea communication to the hinterland of the Asian Continent where they may find the essential materials of modern industry.

Manchuria to-day has about 2,900 miles of railways in operation. Of this total China and Russia own 1,100 miles each, while Japan owns 700 miles. Although the Chinese railways total a greater mileage than the Japanese, much of the mileage consists of the lines financed by foreign, especially Japanese, capital. The line between Mukden and Shanhaikwan, with a few short branches—in all 300 miles—was built with British capital. The lines financed by the South Manchuria Railway or by Japanese banks are these: Supingkai-Taonanfu, 182 miles; Taonanfu-Anganchi (Tsitsihar), 141 miles; Chengchiatun-Paintala, 83 miles; Kirin-Changchun, 79 miles. The lines built by the Chinese with Chinese capital are: Mukden-Hailung, 152 miles; Takushan-Paintala, 156 miles; Hulan-Suihua, 50 miles. It is highly problematical whether railways under absolute Chinese control will prove a paying business. They may be a convenient means for transporting soldiers in continuous civil wars, but transporting soldiers merely swells the debit of the railways. The Peking-Suiyuan line, the only all-Chinese railway in China proper, has been reduced almost to chaos. Even in the case of the railways built with foreign capital the safeguards and supervision provided in the agreements with the Chinese Government have practically been nullified by the most arbitrary seizures and requisitions ordered by military chieftains. The Shanghai-Nanking, the Tientsin-Pukow, the Peking-Hankow, the Peking-Mukden lines — in fact all the foreign (mostly British) financed railways are in the same predicament. On some railways the soldiers have destroyed freight cars for fuel, on others troops and bandits have picked the dog-spikes out of the sleepers. Even the ties are rotting, and no repairs are being made. The militarists are vying with one another in seizing the railway receipts, which should be set aside for the service of the loans with which the railways were built. If this condition is not altered, the entire railway system of China will collapse, and collapse soon.

Now the question is whether Japan will ever permit the Japanese-financed but Chinese-owned railways to fall into the same deplorable condition. The answer is better understood than said. Perhaps the question is unnecessary, for even the Chinese chieftains, respecting Japan's position, would not dare tamper with such railways. The stabilizing influence of the South Manchuria Railway will also serve to forestall the inroads of disorder and disturbance. The more pertinent question is whether these Chinese-owned railways will prove a profitable or even paying enterprise. If one may take the Kirin-Changchun line as an example, one cannot be optimistic as to the prospects of these railways. This particular line was constructed some twenty years ago, the building cost being borne equally by the Chinese Government and the South Manchuria Railway. At first it was managed and operated by Chinese, but its loss was so great that in 1917 the Government entrusted its management to the South Manchuria Railway. Since then the road has been making a fair profit.

Coming back to the negotiations now in process between Peking and Tokyo, it is wide of the mark to say that the object of these negotiations is to put into effect the agreements resulting from the famous "Twenty-one Demands" of 1915. The only right which Japan is now trying to make effective upon the strength of those agreements is the right of leasing land in South Manchuria for commercial and residential purposes. Japan sees in the yet undeveloped lands of Manchuria and Inner Mongolia a potential source of food supply for her growing millions. In asking the privilege of leasing agricultural lands there, however, Japan asks nothing exlusive to herself. Once it is granted to the Japanese, other nationals, by virtue of the most favored-nation clause found in most of China's foreign treaties, will automatically enjoy the same privilege. Nor will foreigners alone derive benefit from the fulfilment of the leasing agreement. The Chinese themselves will be equally benefited, for it will be Japanese capital, not Japanese labor, which will develop Manchuria's virgin soil, thus opening another vast field of employment for the Chinese who are migrating to this "land of promise" from war-torn Shantung, Chihli and other provinces. In the last year alone this immigration has almost reached a million.

Since the leasing privilege is a result of the "Twenty-one Demands" we may linger a moment on those demands, especially the American Government's attitude toward them. When they were being discussed between Tokyo and Peking, the State Department, after a careful study of the whole matter, informed the Japanese Government that it would raise no objection to sixteen of the twenty-one demands. Of course, it thought nothing of such a minor matter as the leasing provision. It even recognized Japan's right to take over the concessions formerly owned by Germany in Shantung province. The remaining five demands constituted the so-called Group V. These Japan dropped in deference to America, and at the Washington Conference they were again formally renounced by the Japanese delegation. As a consequence the Chino-Japanese treaties of 1915 contained nothing to which the American Government ever raised objection.

As I stated at the outset, Japan's stand in regard to China's existing treaties is that while she looks with sympathy upon China's desire to secure their revision, such revision must be effected not by the Bolshevist method of repudiation, but by due process of diplomacy between a recognized Chinese government and the foreign Powers. Here there is no difference between Shidehara's policy and Tanaka's. An illustration of their common attitude in this respect is their manner of handling the question arising out of China's imposition of taxes and duties not authorized by treaty. Take, for instance, the 2½ per cent. surtax which was a subject of discussion both at the Washington Conference and at the Special Tariff Conference which opened at Peking in October, 1925. Not only did Japan raise no objection to the levying of this surtax at the Peking Conference, but she went so far as to propose tariff autonomy for China provided China on her part fulfilled certain conditions. At the same time she insisted that this desired change should be brought about only through treaty revision in conformity to the Washington agreement. If the Peking Conference failed to arrive at an agreement it was not due to any fault on the part of the Conference, but because the collapse of the Chinese Government was followed by nation-wide chaos.

Towards the end of 1926 the southern Nationalists, heartened by the seeming success of their anti-British agitation, began to levy surtaxes in disregard of the existing treaties. Downing Street, momentarily obfuscated by the agitation, proposed that the Powers bow to the inevitable and connive at the illegal imposition of surtaxes without the process of treaty revision. This British concession won neither the respect of the Chinese nor the sympathy of the Powers. The Chinese regarded it as an insincere *volte face*, if not a sign of weakness. At any rate, it was followed by the Nationalist seizure of the British concessions at Hankow and at Kiukiang, and by an increased violence against the British in general. Japan, for one, clearly foresaw what was ahead. She knew that the Powers' connivance at deliberate violation of any treaty by

China would lead to a wholesale repudiation of all China's foreign commitments. At the same time she made it plain that she would at any time meet with any accredited Chinese delegation for the purpose of treaty revision. On January 17, 1927, Baron Shidehara, then Foreign Minister in the Kenseikai Cabinet, made this declaration before the Diet:

> "We have no objection to levying the surtaxes provided in the Washington Customs Treaty, but we must make reasonably certain that such additional customs revenue shall not be applied directly or indirectly to the purposes of civil war or shall not be appropriated to the private use of any faction.
>
> "Viewed in this light, the early resumption of the deliberations of the tariff conference seems highly desirable for China and the Powers alike, and we wish that responsible men of both North and South be appointed members of the Chinese delegation and that they exchange views frankly."

The present Tanaka Cabinet takes much the same stand. Should Chang Tso-lin, of Peking, and Chiang Kai-shek, of Nanking, bury the hatchet and appoint a common delegation, Japan, with other Powers, would be ready to discuss with them the question of tariff surtaxes and other levies. Meanwhile, Japan is asking Chang Tso-lin to stop, and stop at once, the levying of all illegal duties in his jurisdiction. She is saying that she is willing to negotiate for the revision of such treaties as China thinks inequitable, but that such negotiations can be entered into only when Marshal Chang has put an end to the wilful violation of existing obligations.

In considering Japan's policy towards China, one's thoughts naturally turn to Soviet Russia whose acts and intentions in the Far East have a vital bearing upon both countries. It has been frequently said in America and in Europe that "Red" Russia is as much a disturbing element in the Orient as was Tsarist Russia, and that its ambitions and designs are bound to come into collision with Japan's determination to maintain peace and order in that region. In the heyday of Soviet agitation in south China such apprehensions seemed plausible. Baron Tanaka, while leading the Opposition sounded this warning:

"The 'Red' waves are encroaching on China. This is not the time to regard the troubles there as 'far on the other side of the river.' These disturbances in China have gone beyond the limits of domestic disputes. They are endangering the Far East and threatening the peace of the world."

Tanaka, it will be recalled, was something of a Russophobe in the years immediately after the "Red" revolution of 1917. It was he who, as Minister of the Army in the Hara Cabinet, directed Japan's part of the inter-Allied expedition to Siberia in 1918. Even after the rest of the Allied forces had quit Siberia, the Japanese contingent stayed, in pursuance of Tanaka's policy. When Tanaka became Prime Minister last April it was naturally expected that he would be more or less antagonistic towards the Soviet. His later utterances have belied this expectation. True, in May last, speaking before the House of Representatives, he repeated his warning against Soviet propaganda in China, but he qualified the warning with this significant sentence: "This, however, does not mean that we entertain any apprehension as to the preservation of our friendly relations with Soviet Russia, for we believe that Russia fully understands our position in this respect." On January 21, again speaking before the Diet, Tanaka entirely changed his tone: "Our intercourse with the Union of Soviet Socialist Republics, one of our good neighbors, is growing in amity, and the diverse economic undertakings carried on by our nationals in Russian territory indicate fair progress." Nor is it in words alone that Tanaka has indicated a change of his attitude. He has sent to Russia an "economic mission" headed by F. Kuhara, an enterprising business man, and assisted by Hiroshi Saito, officially still Consul-General in New York. Besides, Viscount Goto, a veteran statesman who has contributed much towards Russo-Japanese *rapprochement*, has lately been in Moscow, presumably with the concurrence of the Premier. All this leads us to the conclusion that Tanaka has experienced a change of heart.

Nor is this surprising. No keen observer can fail to recognize a certain community of interest between Russia and Japan in regard to Manchuria. Both have railways and their nationals to protect, Russia in North Manchuria, Japan in South. Soviet Russia has definitely abandoned the idea of relinquishing all the rights and privileges bequeathed by the Tsarist régime in Manchuria but is anxious to regain those which it lost in the wake of the revolution. On the other hand, Chang Tso-lin, actual ruler of Manchuria, is as anxious to seize the joint Chino-Russian Chinese Eastern Railway and to oust "Red" interests from Manchuria. One after another Russian rights have been curbed, and the Soviet is struggling hard to retain its foothold in North Manchuria. It knows that once Japan throws her influence on Chang Tso-lin's side of the scale, its position will become precarious. It is therefore to Russia's advantage that she should show a friendly attitude towards Japan. Japan, on her side, is fully conscious that should Chang Tso-lin succeed in driving Russia from North Manchuria, he would be heartened to try the same policy in regard to Japan's position in South Manchuria. Here, then, is a situation which might conceivably bring Russia and Japan together. Japan, moreover, is anxious to obtain a privilege to develop agriculture in certain parts of Siberia and to enjoy the right of fishery in Russian waters. Of course, her policy would be different if "Red" Russia were bent upon spreading disruptive propaganda in the Far East, as "White" Russia was upon military conquest. Fortunately, Russia's dream of Sovietizing China has experienced a rude awakening, and the Soviet has for the present withdrawn from that field, much to Japan's relief.

This is not to say that there is no railway rivalry between Japan and Russia. Rivalry exists and will always exist, and this for obvious reasons, primarily economic, secondarily strategic. Economically, the greatest agricultural center of Manchuria, actual and potential, is within a radius of a few hundred miles from Harbin, the Russian metropolis and railway center in North Manchuria. As the Russian-owned Chinese Eastern Railway traverses this rich territory, and as the distance from Harbin to Vladivostok is shorter than the distance between Harbin and the Japanese port of Dairen, the Russian railway has an advantage over the Japanese in transporting agricultural products. Under normal conditions the freight originating in the aforesaid region will flow towards Vladivostok rather than towards Dairen. To overcome this handicap the South Manchuria Railway has somewhat shortened the main line between Changchun and Dairen by eliminating curves, and has also offered inducements to the shippers by efficient handling of shipments and improved port facilities at Dairen. In addition, an agreement has been made whereby freights gathered in the Harbin region are divided between the South Manchuria Railway and the Chinese Eastern Railway at the ratio of, respectively 55 and 45 per cent. But the agreement is more or less precarious, and once it is discontinued a cut-throat competition will follow. It is largely in anticipation of this competition that the South Manchuria Railway has financed the Chinese-owned line between Supingkai and Anganchi *via* Chengchiatun and Taonanfu, and is also anxious to build a line from Changchun to Petuna and if possible to a point further north. These lines, it is expected, will have the desired effect of diverting to the Japanese and Chino-Japanese railways much of the freight traffic which would naturally go to Vladivostok over the Russian lines. Whether this expectation will be fulfilled we have yet to see, for the Chinese-owned lines, though financed by Japan, might choose to feed the Russian rather than the Japanese railways, especially if the Russians should offer more alluring terms than the Japanese.

From the strategic view, Japan cannot ignore the fact that Mongolia has already become Russian territory, with its government, its army and its finances controlled by the Soviet. Although Japan has been and means to remain friendly with the Soviet, she undoubtedly feels that she must take a long view, guarding herself against every possible source of danger in the direction of Siberia and Mongolia. The precaution is nothing extraordinary. Japan once had a bitter experience with Tsarist Russia, and she does not wish to repeat it with the Soviet. She will exhaust all the peaceable means at her disposal to adjust her disagreements and disputes; at the same time, she will not neglect to strengthen by all legitimate means her own position *vis-a-vis* the Russian position in North Manchuria and in Mongolia. It is perhaps with this in view that Japan is reported to be quite willing to finance China in extending the Chengchiatun-Taonanfu railway to Solun on the portals of Eastern Inner Mongolia. Meanwhile, Soviet Russia has a number of railways in project in North Manchuria and in Mongolia. These projects, although in abeyance owing to Russia's financial difficulties, are taken into account by the Japanese in making their railway plans. Japan's stand, then, may be summed up thus: Promote friendly relations with Russia, but do not neglect the necessary measures of precaution.

To Japan, after all, the Chinese question means mainly the Manchurian question, and the core of the Manchurian question is the railway. In the entire railway system of China, the Japanese-owned and Japanese-operated South Manchuria Railway is the only bright section. When a traveler alights from the Chinese train at Mukden and embarks on the Japanese one, he feels as though he had left behind a benighted country full of horrors, and emerged into a new one animated with the joy of life. The railway expends enormous sums for schools, hospitals, sanitation, and modern public works for the benefit of both the Chinese and the Japanese in the railway zone. Yet it yields handsome profit every year. Largely through its enterprise, the foreign trade of Manchuria has grown from a negligible quantity to 592,000,000 haikwan taels, about $450,000,000 (1926 figure). Before the advent of Japanese enterprise the Manchurians barely eked out a living by taking in each other's washing. Their principal products, beans and millet, had no market outside of Manchuria and a few Chinese ports. To-day the export of beans and bean products alone amounts to 170,000,000 haikwan taels, or about $132,600,000 (year ending March 1, 1926). It was a Japanese firm, Mitsui and Company, which in 1911 first introduced the Manchurian bean to Europe as a raw material of lubricating and culinary oil. The Central Laboratory of the South Manchuria Railway has found numerous other uses for the bean, and to-day the once obscure legume has firmly established itself as an article of world merchandise. This phenomenal growth of Manchuria's agriculture and trade has naturally raised Dairen, the terminal port of the South Manchuria Railway, to a second place among the commercial ports of China. In 1926 Dairen's foreign trade totaled 332,000,000 haikwan taels, or $250,000,000, exceeded only by Shanghai's 927,000,000 taels, or $729,000,000.

Shall this condition of peace and prosperity be replaced by chaos and misery such as has made life unberable in war-ridden China? It is inconceivable that Japan will permit the factional feuds of China to convert South Manchuria, especially the railway zone, into a harrowing scene of destruction and pillage. This Japanese determination, quite apart from the right or wrong of it, is in the present unhappy state of affairs in China, inevitable.

# Mr. T. V. Soong on Taxation and Kuomintang Hopes

MR. T. V. SOONG, Minister of Finance of the Mationalist Government, in an address before the Union Club in Shanghai, outlined the policy of his Ministry with regard to taxation. Mr. Soong, who represents the Anglo-American intellectual group in the Nanking Government devotes himself principally to administrative efforts, leaving politics *per se* to those who have nothing better to do. His address is here given in full because it is so important:

"Mr. Chairman and gentlemen: The pleasure of being with you to-day is heightened by the recollection that I was one of the first members of the Union Club when I was in business in Shanghai some years ago. I feel so much at home in these quarters that I am emboldened to speak to you with complete candour, as one business man to another.

"I have returned to Shanghai from Hsuchowfu, where I had an opportunity to see our armies at the moment of what we believe to be a decisive victory. Our troops are preparing for what we hope may be the final struggle with militarism and feudalism in North China. Our officers and men gave evidence of that fine morale and enthusiasm which had brought our forces in so short a time from Canton to Shantung.

"But you do not expect me to talk to you about military movements, even though little else can be in the mind of a Nationalist Minister at this moment, when we are fighting to complete the first stage of the Revolution. You prefer, I am sure, that I should talk to you about the financial policy of my Government and about that very much disliked and abused subject, taxation. In discussing these questions with Chinese and foreign business men, I can have no illusions that you are anxious to pay all the taxes which we propose to levy. Business men always protest against any taxes and I know that because I was once a business man.

"However, it is a fundamental economic fact that as long as taxation does not increase the selling price of a commodity beyond the purchasing power of the people, the merchant cannot complain of the rate of taxation, which, after all, is paid by the consumer and not by the distributor of goods. What does concern him is the system of collection, the honesty and impersonality with which it is carried out. He wants to be certain that he is on an even competitive basis with others selling the same commodity.

"Now, the working out of a fundamental policy of taxation and a system of collection, is not merely a personal matter with myself. All this comes within the realm of the fundamental fiscal policy of the Kuomintang. What I shall say to you is not an expression of personal policy, but of Party policy. It matters little whether I continue in office or whether the present Government continues; our fiscal policy is part of our political program laid down by Dr Sun Yat-sen and it will continue to guide us as long as the Kuomintang controls the Nationalist Government.

## Five Guiding Principles

"Now, we believe that our policy is inherently sound and that if applied equitably and honestly, it will result in an increase in revenues, while at the same time, trade will be relieved of vexatious impediments. Sketchily stated, our policy requires, (1) Taxation at the source; (2) Evenness of taxation; (3) A simplified system and consolidation of taxes on the same commodity; (4) The elimination of leakage; (5) Strict accountancy.

"I can only refer to some of these questions in the time allotted to me to-day. I need not say to you that we have not yet succeeded in every particular of this fiscal program. We are far from success. But that is to be expected in the circumstances of revolution and civil war and the inevitable looseness of control of areas through which soldiers have to pass. These circumstances force us to use the very simplest economic methods. We have neither the time nor the conditions to justify embarking upon the intricacies of the merits of direct and indirect taxation. We have to produce revenues to win the war and we want to do it in such a manner as will be of the least disturbance to the body politic.

## For All Nationals Alike

"The first principle of taxation for any Government is that a tax once levied on a commodity shall be applied without respect to persons. There have been many suggestions that we tax goods manufactured by Chinese companies at one rate and goods manufactured by foreign companies at another rate. The Ministry of Finance has resisted such proposals as inequitable, as harmful to trade and as an impairment of the very object of the tax which is to raise revenue for the Government without destroying industry.

"Native industries should be encouraged and stimulated by every honourable means so as to provide for our own industrial development and the improvement of the standard of living of our own people. But it is my conviction that if Chinese companies will organize on a modern basis, will reduce their overhead, utilize efficient methods of production and distribution and drive politics out of their firms, they will be able to compete with foreign firms in this country advantageously. It is not our purpose to grant rebates and bonuses which are justified neither by national interests nor the needs of the industry.

"Secondly, it is our object to eliminate leakage in the collection of taxes, to cut down the overhead, to reduce smuggling to a minimum and to make it possible for the Government to receive the whole of the amount collected from the people. This is not easy. In the collection of certain taxes, we have been able to eliminate leakage completely; in other taxes, we have been far from successful. There are many elements that enter into this. For instance, with respect to the tobacco tax, we are able to eliminate leakage in collection because the large companies co-operate with us and there are comparatively few small companies.

"One of our chief difficulties in eliminating leakage and smuggling is that the public is accustomed to the old ways. They are willing to split with tax collectors to get some slight advantage. It takes time to build up an organization which will not "squeeze." We are building up such an organization. Unfortunately, the vested interests, who know the ropes and exert local influences are everywhere against us, while the younger men whom I am employing in my Ministry must gain experience and must create public confidence in themselves. Some are easily discouraged. Some slip back into the ways of the mandarin, because it is the line of least resistance. Others lack confidence in the Ministry itself and do not believe that it will last long and therefore they will not antagonize powerful men. But, on the whole, I am very enthusiastic about the type of man who has come into my Ministry. They have grasped the underlying principle that when a man works in the Ministry, he is on a job and is expected to work for his salary and in the expectation that good work will bring promotion.

"We have very few politicians in our Ministry. We do not want them. We want efficient, honest administrators who will fearlessly do their jobs. There are many such men in China, but it will take time to find and to place them.

"Another impediment, gentlemen, is the fact that smugglers, mandarins and political financiers can operate in your settlements and it is difficult for us to reach them there without your co-operation. You have no idea what an additional overhead to the cost of trade, these people are. It is not so much that taxes are high, but that these people force us to waste so much in the mere business of collection, which should be largely an automatic process. They band together into cliques and exact their toll on the trade done. They have organized smuggling until it has become scientific and we have to break the system without touching those who operate it, because they are in your Settlements. I hope that the time is not far distant when the Settlements will cease to be used as a base for smugglers and political financiers, when there will be active co-operation between the Ministry of Finance and the Settlement authorities in the modernization of the collection of national revenues.

## One Through Tax

"Thirdly, we propose to consolidate taxes, so that throughout Nationalist territory and that, we hope, will soon mean throughout China, one tax will be paid on goods and those goods will be able to travel everywhere without being taxed again. Now, business men have always denounced likin and Chinese and foreigners alike have always insisted that although likin is a detriment to trade, it cannot be abolished because the provinces needed the likin revenue for themselves. But it is a fact, gentlemen, that the provinces receive only a small share of what is collected at the likin stations. Most of the money disappears *en route*. To give our mandarin friends the benefit of the doubt, we might say, the overhead on the collection is too high.

"Now, the Ministry of Finance hopes to solve this problem by consolidating the taxes on most commodities. That means that the Ministry will collect a single tax and that the goods will pass freely on the Ministry's documents or stamps. The Ministry of Finance, on the other hand, will make provision so that the provinces do not lose any of their revenues as a result of this consolidation. We have completely and successfully achieved such a consolidation with regard to cigarettes and petroleum. We expect to extend the consolidated tax on those commodities to all provinces. but wherever they are being applied, conditions are beneficial alike to the National Government, the province, the distributor and the consumer. We are raising more revenue on a reduced tax than others were able to collect when the taxes were considerably higher.

"We expect to apply this system of consolidating taxes to many commodities in the near future. It is possible that certain Chinese and foreign merchants may not understand that consolidation is in their interest and I suggest to those who oppose all innovations, that they study this problem very carefully before they register their complaints. The consumer eventually pays the tax and the merchants' problem is not so much that the rate should be at a certain figure as that there should be no confusion, no multiple taxation, no rebates to his competitors. Our plan of consolidation—one tax on one commodity—will produce system and evenness. By supporting this system, the Chinese and foreign merchants can assist the Ministry of Finance to end confusion in taxation.

## Customs and Salt

"Now, gentlemen, you may perhaps feel that we have not always agreed with some of your conclusions with regard to fiscal measures. I have particularly opposed a tariff conference with the Northerners and the position of our soldiers at the front to-day fully justifies my opposition. That question can best be discussed when we have reached Peking. The attempt to involve us in a discussion prematurely was solely in the interest of Peking politicians and I am not working in the interest of Peking. Similarly, there are some obstacles in the settlement of the salt question. But these broader issues, which involve relationships with the foreign Powers, can undoubtedly be much more satisfactorily handled when we shall have defeated the northern militarists and when it is evident that the country is being unified. But whether you have particular views on these subjects or not, you are bound to be in constant relationship with us so far as your daily business is concerned, because every business is affected by taxation and therefore I speak to you with such utter frankness when I say that the elimination of waste and confusion from the collection of taxes is as much to your advantage as it is to ours. You may resort to technicalities to oppose the systematization of taxes, but you do so to your detriment, for it will cost you more in the end. It is almost primitive to have to say this; yet there are those in China, Chinese and foreigners alike, who prefer the old ways because they are used to them, even if their own experience and wisdom dictates a modern course.

## The Spending on War

"There is one other subject I want to touch upon and then I shall be through. There is the natural criticism that no matter how modern and efficient we may become in the collection of taxes, we have done nothing to control the disbursement of revenues. Gentlemen, we must first prove that we can increase the revenues, while reducing the amount paid in actual taxes, before we can begin to attack the extravagance and lack of system which is evident in the disbursements of revenues. You must realize that we take our wars seriously. We are throwing money and men into the fight with almost heart-breaking extravagance because we want to make this a fight to the finish. Every one is weary of these civil wars. The country wants to rest and to enter upon a reconstructive period. But there can be no rest as long as feudal lords are everywhere maintaining huge armies which they trek across the country to suit their convenience. We have to destroy these feudal armies and we have to provide for the return to civilian life of some of our own armies. When you were fighting your own wars, you never stinted to achieve victory. We feel exactly the same way about it and we hope that decisive victory which will bring peace. This is not an idle hope. When that day comes, we shall apply modern methods to disbursements as we are now applying them to collections. To interfere with the usual machinery at that moment might affect our military operations and frankly, we do not care to take the risk. The present conditions on our three fronts are most satisfactory. We believe that we shall reach Peking sooner than we had expected. And I do not regard myself as over-optimistic when I say, in conclusion, that the Second Stage of the Revolution, the stage of Reconstruction, is not far distant."

# Inaugural Address of Henry L. Stimson, Governor-General of the Philippines

FELLOW-COUNTRYMEN :—I thank you for the warmth of your greeting. Previous contact with the people of these Islands has acquainted me with their kindness to the stranger, and I welcome it now as a hopeful augury of success in the difficult task before me. What we have to accomplish together in the successful administration of government in these Islands, can only be achieved by the fullest possible measure of sympathetic and patient co-operation. For my own part, I shall use my utmost endeavor to establish such harmonious co-operation under the Organic Law under which it is our joint duty to labor.

It is not within the province of the Governor-General to determine the future relations of the inhabitants of these Islands to the United States ; that duty rests with the Government of the United States. But it is his duty, so long as the present connection remains, to endeavor to make that union a happy and fruitful one, and to carry on the government of these Islands, so far as it rests in his hands, in full conformity with noble and unselfish purpose of the American leaders who in past years have devised, created and administered it.

It has been my good fortune during my life to come into close contact with several of these men. I have sustained both personal and official relations with that statesman who, as Secretary of War, first laid the broad and enduring foundations of American policy in the Philippines upon which all subsequent growth has been predicated, Elihu Root ; with that devoted founder of your civil government and laws, William Howard Taft ; with that efficient administrator, so justly beloved throughout the Archipelago, W. Cameron Forbes ; and finally with that faithful friend of the Filipino people whose recent labors have made possible, we believe, a new era of constructive accomplishment, Leonard Wood. These great men, each in his own time and way, have helped to formulate the doctrine of trust responsibility which underlies the sovereignty of America in these Islands and places upon the shoulders of the Governor-General a duty of protection toward the liberties of the humblest citizen. No one can approach such a task, in the light of such examples, in any other than a spirit of profound humility.

Governor-General Henry L. Stimson

For many years I have earnestly followed and observed the development of government in the Philippines and have noted with gratification the progress which has been made. During the past two years, I have had occasion to visit and study other peoples both in the Orient and in the Americas, and I congratulate you on the contrast between the peace, the order, the general contentment prevailing here, and conditions which I observed in some of these countries.

I congratulate you especially upon the zeal which you have consistently displayed towards education and the progress which has been made through that instrumentality in the direction of achieving national consciousness and a common language. In so doing you have grasped at one of the basic necessities of a self-governing people, and the vigor and readiness to make sacrifices which have accompanied your efforts have been in a high degree remarkable and encouraging. Errors in the methods and character of education have possibly been committed ; by too many students it has been regarded as the object and end of their endeavor, instead of merely the means towards further effort in the never-ending struggle of life. Yet when all is said, in following the injunction of Solomon to take fast hold of instruction, you have taken a long step forward on what President Roosevelt has called, " the stony and difficult path which leads to self-government."

I venture to hope that during my administration further progress may be made along that same road, and among the various matters which I deem important, I lay particular stress upon industrial and economic progress. It has often seemed to me that sometimes in our insistence upon political development we overlook the importance of the economic foundations which must underlie it and upon which it necessarily rests. By some of us, industrial development has even been dreaded as if it were inconsistent with the liberties of a people. As a general proposition, I believe that no greater error could be made. History shows that it has been the great commercial and industrial nations which have first developed individual liberty and free institutions and which have most tenaciously clung to them. It has shown further that within such countries it has been the middle artisan class, produced by industry and commerce, which has been the pillar and support of their free institutions. The industrial guild, in ancient times, was a birthplace of common rights, and in later days the trade union brought forth by industrial development has often been a bulwark against governmental oppression. On the other hand, those nations which have depended solely upon agriculture and the tillage of the soil, where there was no commerce or industry and no middle class of citizens engaged in them, have been the ones most prone to drift into the abuses of serfdom and peonage and other varying forms of servitude. If there is danger to-day of the loss of personal freedom in these Islands, if for example the threat of the usurer overhangs any class of your citizens, it is the tillers of your rice paddies who are subject to the danger rather than the artisans of your shops and factories.

Furthermore, the world has now reached a stage of progress where government is expected to engage in activities for the social benefit or protection of the individual, all of which are expensive and require greater governmental revenues. The constantly expanding system of public education, to which I have just alluded, is but a single example. The government of to-day is expected to furnish not only schools and colleges, but also hospitals, asylums, libraries and museums, public roads, aqueducts and post offices, and a constantly increasing variety of services of health and education, travel and communication, protection and social welfare which modern civilized life regards as essential. All of these services minister to the comfort and welfare of the individual citizens; some of them, like education, directly conduce to his ability to govern himself. Some of them are particularly necessary in the tropics with its constant threat of epidemic disease. But they all cost money. They all make inroads on the revenues which come from taxation. To support them a community must possess the wealth which comes only with industrial development. To-day your budget and your tax laws indicate that you are already reaching the limit of the revenues obtainable upon your present economic development. You are faced with the alternative of increasing your taxable wealth or checking and holding back some of the necessary activities of your government and important public improvements.

In short, it is the simple truth not only that individual freedom and the practice of self-government are found to be most prevalent and firmly held in those communities and nations which have a highly developed system of industry and commerce as a foundation, but it is also true that only in such communities and nations can the average citizen attain the degree of individual comfort, education and culture which modern civilization is coming to demand.

Is there any reason why the Filipino people should not attain such an economic development? Manifestly it lacks it to-day. Manifestly its attention during the past generation has been more concentrated upon political than economic development, with the result that progress in the latter field has not kept pace with the exceptional progress made in education and public affairs.

But the Philippine Islands to-day are possessed of a political connection with the foremost industrial nation in the world—the nation where not only has mechanical invention made the greatest advances, but where the organization and methods of industry and the relations of capital and labor are more enlightened and fruitful than in any other country under the sun. Is it not the part of wisdom and of prudence for this people to absorb to the uttermost the lessons and benefits which can be derived from the teaching of such a successful practitioner?

Have not the people of the United States sufficiently demonstrated the unselfishness of their attitude toward these Islands in the matter of political development to make them worthy of confidence in the matter of economic development? I believe that nowhere in the world are the relations of capital to the public watched with a more jealous eye than to-day in the United States. The abuses of capital which excited criticism a generation ago have been curbed. The American captains of industry of to-day have a very different standard of duty toward the public from their predecessors of the nineteenth century. It should be an easy matter for wise statesmanship to gain for these Islands the inestimable benefit of the guidance of American industrial experience and capital, upon terms which would not only share present profits with the Filipino people but would also leave their rights and resources unimpaired for the generations to come.

Moreover, I believe that the establishment of such industrial relations with the United States would greatly benefit the social relations of the two peoples. Business relations between worthy partners tend to produce mutual confidence. On a small scale I witnessed a striking example of this tendency when I visited Hawaii on my journey hither. The Filipino laborers who go from here to the Hawaiian sugar plantations occupy a very different position in that community to-day than they did ten years ago. They have won their place in the confidence of those with whom they come in contact. They have become almost indispensable to the industry of those Islands, while at the same time they have themselves derived corresponding benefit in training, in responsibility and in earning power. As I listened to the generous praise spoken of them by their employers in Hawaii, I could not help feeling that if such a change of sentiment could be effected by the mere contact of a few laborers engaged in field labor, what an enormous social benefit could be derived should the Filipino people in large numbers and of all classes, laborers, artisans and investors, be brought into friendly, profitable and co-operating contact with the representative business men of industrial America.

Three centuries ago, under the leadership of Spain, you turned your faces from the Orient toward the Western World. You accepted a civilization and a religion which marked you as a separate people from those who surround you. Now with the passage of those three centuries, your connection with the West has itself become transformed into a promise of new opportunities. The nation with which you are now connected represents not only political freedom but the highest average standard of social and material welfare which has yet been developed in this world.

I cannot believe that this opportunity will not be grasped by the Filipino people. On the contrary, I believe that it will, and through it that they will press forward into new stages of political freedom, individual comfort and social welfare.

I have addressed myself thus far to the Filipino people, because the steps necessary for the solution of the problem which I have been discussing must primarily be taken by them. Before closing, may I add a word of appreciation and good wishes to the American residents of these Islands. I am keenly sensible of the debt of gratitude which both the Filipino people and the people of the United States owe to them and of the duty which rests upon the shoulders of the Governor-General to protect their legitimate rights and interests. Whether in the military uniform of the United States, whether as civil servants and teachers of this Government, or whether as business men risking their all in the development of its resources, these Americans have rendered inestimable service to this land. They have been the pioneers in the performance of an American service to an Oriental people, such as no other nation of the world has even attempted. It would be a short-sighted policy indeed which allowed them to be treated either with neglect cr injustice, for such a policy could result only in ultimate injury to this country where their service was rendered.

In the conduct of this office into which I have now been inducted, it will be my earnest endeavor to be watchful of the interests of both Americans and Filipinos alike, to be equally accessible to all and patient in hearing all sides of such issues as may arise.

Working all of us together in a spirit of sympathetic co-operation, I trust that under the providence of God, we may be successful in carrying forward the high aims and purposes of the noble men who have preceded us.

Manila, March 1, 1928.

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# Trade in the Pan-Pacific Area

### *By Frederick J. Koster, President, California Barrel Company, San Francisco*

I DON'T intend to burden you with a great mass of statistics, but just to quote enough to give some idea of what has been taking place in this Pacific Area and of course with especial reference to that portion of our United States represented by this Western Division of the United States Chamber of Commerce.

As an index we might begin with this Hawaiian portion of our country and quote a few significant figures and take only two outstanding products.

The sugar production of Hawaii in 1902 was, in round figures, 356,000 tons. In 1926 it was 787,000 tons. In 1902 practically no pineapples were packed. In 1926, 8,940,000 cases were packed.

The sugar crop of 1926 had a value of approximately $59,000,000—the pineapple pack of 1926 approximately $35,000,000—from nothing in 1902.

The value of the principal imports from the United States to Hawaii in 1926 was $76,300,000 and comprised a tremendous variety of things of human requirement—a list far too long and too varied to attempt to mention.

There are in these islands something less than 340,000 people. Now visualize for a moment what this Pacific area consists of. On the western side beginning from the southerly point of South America and coming along through Chile, Peru, Ecuador, Colombia—then the countries of Mexico and Central America—Mexico, Salvador, Panama, Honduras, Guatemala, Costa Rica—then the western slope of our own United States of America, Canada and Alaska to the Bering Sea—and on the other side the whole Pacific Coast of Asia—Siberia, Manchuria, Mongolia, China, British India, British Malaya, Ceylon, Dutch East Indies, French Indo-China, Japan, Philippine Islands—then Oceania, with Australia and New Zealand, British and French Oceania.

The various sectors of the Asiatic side of the Pacific basin have an area of 7½ million square miles compared with 2¾ million square miles that make up the American side. This ten million square miles is slightly more than one-fifth of the land surface of the earth.

This Pacific area holds, all told, nearly one-third of the earth's combined population—540,000,000 people on its Asiatic side and 23,000,000 on the American side. The land area of the Pacific basin then is one-third larger than the continent of North America, and has a population equal to that of Europe and North America combined.

The interchange of commodities among this group of humanity is the subject with which I am very briefly expected to deal and particularly with regard to its bearing upon the western portion of our own country; namely, the eleven states included within the western division of the United States Chamber of Commerce and of course including Hawaii; namely, California, Oregon, Washington, Montana, Utah, Wyoming, Nevada, Arizona, New Mexico, Colorado, Idaho and Hawaii. In 1913 the population of this district was approximately 7¾ million people. In 1926 slightly over 11 million people. A gain in population during that period of some 40 per cent.

It might not be amiss to quote a few figures giving some slight insight into the progress made by the eleven western states. I haven't the like figures for Hawaii. The total value of the products of agriculture of that district was in 1909; $562,000,000; in 1924, $1,358,000,000.

The value of mineral products in 1909, $354,000,000 and in 1926, $1,046,000,000.

The value of manufactured products in 1909 was $1,208,000,000, and in 1925 $4,502,000,000.

I regret that the exactly comparable dates are not available, but they are near enough to give some conception of the progress that has been taking place.

The total foreign trade of the Pacific Coast of the United States of America and the rapidity of its growth the last 25 years is shown by the following figures:

| | Exports | Imports |
|---|---|---|
| 1900 .. .. .. | $ 69,608,329 | $ 58,401,381 |
| 1913 .. .. .. | 134,203,664 | 131,301,410 |
| 1926 .. .. .. | 516,471,238 | 537,534,391 |

In 1926 the Pacific Coast combined volume of exports and imports amounted to $1,054,005,629 (nearly ten times that of 1900 and four times that of 1913) against $128,009,710 in 1900 and $265,505,074 in 1913.

The trade of the western states of the United States with nations of the Pacific area is shown by the following figures:

Southern, eastern and southeastern Asia *viz.* Pacific Coast of Asia—Exports, 1913, $64,399,212; 1926, $200,746,086. Imports, 1913, $79,162,391; 1926, $391,281,285.

Oceania—Exports, 1913, $6,854,326; 1926, $46,789,102. Imports, 1913, $1,907,227; 1926, $5,441,476.

Mexico and Central America—Exports, 1913, $5,949,332; 1926, $26,029,093. Imports, 1913, $4,048,558; 1926, $27,666,646.

West coast of South America—Exports, 1913, $2,770,425; 1926, $15,990,496. Imports, 1913, $3,926,820; 1926, $19,527,420.

Grand total—Exports, 1913, $79,973,295; 1926, $289,554,777. Imports, 1913, $133,044,055; 1926, $443,916,827.

It might be interesting to call attention to the following comparison:

United States exports to France in 1926, $263,780,000.

United States exports to Japan in 1926, $260,754,000.

United States imports from France in 1926, $152,030,000.

United States imports from Japan in 1926, $400,692,600.

Total volume with France, $415,810,000.

Total volume with Japan, $661,446,600.

These figures give some idea of the significance of our trade in the Pacific area. I find also that the total exports of the United States as a whole in 1926 to Asia and Oceania amounted to $772,000,000 and the imports to the United States as a whole and those sections of the Pacific area amounted to $1,443,000,000, or nearly double the amount of our exports. Of course, these imports are greatly increased by certain things that we are, at least not yet, able to produce for ourselves, as, notably, rubber.

This makes a total volume of trade between the United States, Asia and Oceania of $2,215,000,000.

Dr. Julius Klein, director of the Bureau of Foreign and Domestic Commerce, states, with regard to trade of the Pacific Coast states with the west coast of South America:

"A study of the import statistics of Ecuador, Peru, Bolivia and Chile, generally designated as the west coast countries of South America, shows constantly increasing imports, with a steadily mounting share from the United States. In 1913 total imports into these countries amounted to $177,819,482, of which 18.2 per cent. originated in the United States; in 1924 total imports had risen to $237,723,115, of which 29.6 came from the United States; of total imports valued at $256,669,123 in 1925, 31.9 per cent. were from the United States; and 1926 figures show total imports of $262,529,959, with 36 per cent. coming from this country.

The Pacific Coast states have shared extensively in this expanding market, shipments thereto from the ports of Oregon, Washington and California having increased 238 per cent. between 1913 and 1926, or from less than $4,500,000 in the former year to more than $15,000,000 in the latter. In view of the fact that total imports into these four west coast countries of South America were only 47 per cent. greater in 1926 than in 1913 and that total imports from the United States increased 192 per cent., the increase of 238 per cent. from the Pacific Coast states is particularly significant.

"The outlook in this market for Pacific Coast products is exceptionally bright. In 1926 the west coast countries of South America imported $178,400,000 worth of merchandise of a character similar to that produced in the United States Pacific Coast area, or nearly twelve times the amount which our Pacific Coast exported to that region. Obviously, it is not to be expected that any single source of supply can ever monopolize the entire demand, but the facts adduced show the potential development, and these possibilities are accentuated by the present great expansion that is taking place in the commercial and industrial structure of the South American west coast."

Dr. Julius Klein also says, in an article on "Our New Trade Frontier in the Orient," that:

"Before the World War (in 1913) our commerce—exports and imports—with these lands from New Zealand around to Japan and westward to India totaled, in round figures, $462,000,000. This represented just under 12 per cent. of our total imports and just under 7 per cent. of our total exports.

"Last year we did a business with the Orient of $2,215,000,000, of which $1,443,000,000 represented imports and $772,000,000 represented exports. This import trade now constitutes 30 per cent. of our total imports, and our exports to the Far East have increased to 14.6 per cent. of our total exports. In no other part of the world have we made such rapid advances in the development of both import and export trade as we have with the countries of the Far East. Not only has the actual volume of the trade increased many fold, but the proportion of our world commerce represented by it has more than doubled.

"Industrially, also, the Orient has been awakening, and in those lines where unskilled labor may be utilized to advantage, some degree of success has been attained. Japan, for example, has developed a large cotton-textile industry, India has done the same, and in China over 5,000,000 spindles are in operation, of which more than 3,000,000 are Chinese owned. The Far East now employs tens of thousands of workers in its mills and the new purchasing power represented by its mills and the new purchasing power represented by their earnings is expanding steadily. India has in Bengal a world center for jute production, and is developing slowly but successfully an iron and steel industry.

"Even more important than these considerations is the fact that this new economic advance across the Pacific will afford a new outlet for the many varieties of special machinery, replacements, and supplies which America is so well qualified to provide. Our sales of machinery to this region in 1926 reached the impressive total of $72,000,000—and this is just a beginning. Furthermore, this factory development involves the payment of wages which yield a higher income to thousands of the native population than they would otherwise receive, and it has already had the effect of increasing their purchasing power noticeably.

" These factors have already resulted in remarkable developments in the sale of small luxuries to the Far East, which are now being distributed in areas where poverty has heretofore precluded their being marketed. American sardines, for example, are widely sold throughout the Far East, and in remote sections of fish consuming regions, like Burma or Java, considerable quantities are consumed even in native shops run on such a small scale that single sardines are delivered direct from the tin to customers for home consumption. California raisins, also, are being distributed extensively throughout Japan, China and Java, and more recently in British India. Such articles as chewing gum, silk hosiery, flashlights, radio sets, phonographs and phonograph records, canned vegetables and fruits, breakfast foods, and condensed milk are beginning to appear more largely in our export statistics to the Oriental countries. As yet some of them represent individually only moderate values, but they are straws indicating the direction of the trade winds of the future. These little imported luxuries are going to be more and more in demand as the standard of living rises in the east and America's share in supplying them should be a substantial one.

" On a larger scale is our growing trade in automotive products and tires, which were sold to a total of $79,000,000 in the Far East during 1926. Many of the trans-Pacific countries—notably China, India, and Australia—have rail systems inadequate to meet the needs of their internal commerce, and the automobile and motor truck are being introduced to fill the gap. This progress would undoubtedly be faster if road and highway development were greater, but we have already sold so many motor vehicles in the Orient that the need of better highways is being felt. There, just as in the United States, the use of motor transport creates a demand for roads, and good roads develop a demand for motor vehicles. The reciprocal effect of these two factors is beginning to operate in the Orient.

" There is some evidence that the trade lines of the future will knit the United States more closely with the relatively nearby countries of China and Japan, where we have the advantages of proximity, as compared with the European nations, and where our progress is unimpeded by the preference of colonies for the goods of their mother countries. It is to Japan and China that we shall be shipping the major portion of our sales to the Orient, and our purchases from them promise to continue at a heavy rate."

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# British Trade and Industry

*By Gilbert C. Layton, Assistant Editor of "The Economist"*

(Special to the "Far Eastern Review")

## The Iron and Steel Outlook

As the year 1927 recedes into the background the iron and steel manufacturers are looking increasingly to the future. In normal circumstances the spring months witness a period of marked activity in this department of industry. Thus the question uppermost in steelmaker's minds is : "Will the forthcoming months bring inproving trade ? " There is little to encourage jubilation, but there is much to justify sober optimism. During the closing weeks of the old year there were signs of an increasing volume of trade and since the coming months frequently bring a seasonal improvement it is expected that this increasing volume will continue to swell in the near future. This hopefulness, indeed, has become so noticeable that it finds reflection in the prices of iron and steel companies' shares quoted in the Stock Exchange, these securities having shown a general advance in recent weeks.

The improvement, assuming that it materializes, will not, it is expected, be general, some sections of the industry benefitting more than others. The export trade, even if profit margins are finer than could be wished, will probably make a more satisfactory showing. The secretary of the London Iron and Steel Exchange sums up the position by saying that there has been sufficient movement in the iron and steel markets of late to warrant the belief that the normal spring demand is beginning to make itself felt. While the volume of orders at present on hand in many British iron and steel works leaves something to be desired, there has been a welcome improvement in the inquiry from some of the principal export markets. The improved conditions at the shipyards have created a demand for shipbuilding material and many of the works engaged in manufacturing railway material are stated to have enough orders on their books to keep them busy for some time.

## The Position of the Coal Industry

The coal mining industry, like the iron and steel trades, is canvassing the trade outlook for the coming months, but, unlike the iron and steel trades, finds little that is encouraging. The published statistics continue to show that the industry is, from the financial standpoint, in a deplorable condition, for considerable losses are being sustained in practically every coalfield. The output does not alter materially and the volume of coal exported, is in the circumstances fairly satisfactory, but the prices at which the coal is having to be sold make losses inevitable. It is perhaps a small consolation that it is difficult to imagine a worsening of the position. There may be isolated cases of improvement, but in the main there are no noteworthy signs of better times. We have frequently indicated the remedy—summed up in the word rationalization—which would go a long way towards meeting the situation. Unfortunately, the great majority of the coal-owners still fail to appreciate its merits.

On the contrary, they appear to be pinning their faith to local, patchwork measures. A month ago we referred to the scheme promoted by the Yorkshire, Nottinghamshire and Derbyshire coalowners. It appears to be making somewhat slow progress, an official statement just issued declaring that the " scheme is being formally constituted and the preparatory work in connection with the formation of the three main committees is proceeding, and such committees will shortly be functioning. Already other districts are approaching the Three Counties Committee with a view to the scheme being framed so as to admit of their admission. There is a prospect that eventually the whole of the Midland coalfield, including Lancashire, will be included within the scheme. Important developments may therefore be expected in the near future."

## The Scope for Steel Products

The British steel trade is urging the claims of steel for purposes for which it is at present not used at all or only to a very limited extent. In particular, efforts are being made to prove the desirability of substituting steel for timber in many directions. There is a wide field for steel, it is claimed, in the coal mining industry. The Chief Inspector of Mines and the Inspector of the Northern Division have both recently advocated the extended use of steel fortification at the collieries. Apparently there are certain technical objections, but it is the view of these inspectors that, both as regards safety and length of life, steel is preferable to timber. It may not be without significance that the British Colliery Owners' Research Association is about to appoint a practical mining engineer as technical investigator, whose first duty will be in connection with the use of steel supports in place of timber underground.

A special appeal is also addressed to the railway companies. "In America," says Lord Furness, "which is a timber growing country, practically all rolling stock is built of steel, while we, a timber importing country, build most of our waggons of wood." Many advantages are claimed for the steel waggon, and it is submitted that the standardization of steel waggons and vans would enable them to be produced at a figure which would place steel makers in a position to compete with the timber constructed vehicle; and the steel passenger coach, though admitted to be a more difficult proposition, is not regarded as by any means impracticable. Again, there is scope for the use of steel as sleepers and signal standards. What success will attend the efforts of the British Steelmakers to popularise their product remains to be seen, but there can be no doubt that this move is not ill-advised.

### Iron and Steel Companies' Good Results

During the past week or two a number of the leading companies engaged in the British iron and steel and heavy engineering industries have published their annual reports for 1927 and the great majority show a substantial improvement as compared with 1926. The year 1927 was a period of recovery from the troubles of 1926, which were due to the coal stoppage. An improvement in the reports mentioned above was, therefore, to be expected, but it is probable that the degree of recovery has exceeded well-informed expectations. The report of Vickers has created a particularly favourable impression, the net profit having advanced from £562,284 in 1926 to £992,984 in 1927; the ordinary dividend is 8%. Actually 14% was earned on the ordinary capital, but the company is pursuing a conservative financial policy. Moreover, the balance sheet as a whole showed a notable improvement, particularly in the matter of liquidity. The re-organization carried out a year or two ago has borne excellent fruit and the confidence of investors in the future of the undertaking is indicated by the fact that the shares return less than £4. 0. 0%. At the meeting the Chairman emphasized the importance of the company's armament business and declared that it was not the intention to embark recklessly upon other enterprises.

Stewarts & Lloyds also show a greatly increased profit, the figure for 1927 being £440,742, against £186,912 for 1926. Hadfields likewise shared the greater prosperity of 1927, when a profit of £187,223 was earned, the corresponding figure for 1926 being £68,876. The excellent showing made by these and other reports has tended to focus attention upon the shares of iron and steel companies, with the result that quotations have moved upwards. It seems generally agreed that, given freedom from exceptional disturbing factors, 1928 will be even more profitable than the preceding year. There is, however, much leeway to be made good before the industry ceases to give ground for concern.

### British Coal Marketing Schemes

The British coal mining industry has lately made a considerable measure of progress in devising organized schemes of coal marketing. Indeed, one scheme—namely, the Midland Scheme, which covers the Midland counties—is already in operation. Clearly these attempts to establish organized methods of marketing are of considerable importance and if the details are faithfully observed they should not be without effect upon the coal market. It will, therefore, be of interest to indicate the main provisions of these schemes. The Midland Scheme, since it is already in operation, claims to be noticed first. This provides for (1) the fixing of basic tonnage for each undertaking on the basis of the output in any of the 15 years ended December 31st, 1927, selected by the undertaking, (2) the restriction of output by the application of a quota percentage to basis tonnages. (3) penalties for raising coal in excess of the quota, (4) a tonnage levy on all coal raised, (5) the payment out of funds raised by the levy and penalties, of financial assistance to coal exporters, (6) the consideration of the formation of a central shipping bureau to deal with sales for export. This is the most ambitious of the marketing schemes, especially in so far as it relates to the export trade.

The South Wales Scheme provides for a tonnage levy on all coal raised, the fixing of penalties for selling below minimum prices and payment of compensation out of funds raised in respect of shifts lost through the operation of minimum prices. The Scottish Scheme offers still another variant, since this provides for a tonnage levy on all coal raised, except coal for shipment and coal for associated and auxiliary undertakings, a special tonnage levy on coal for certain scheduled classes of consumers and the payment of compensation out of the funds raised by the special and general levies in respect of the curtailment of output capacity. Neither the South Wales Scheme nor the Scottish Scheme have yet been put into operation, but there seems little doubt that sooner or later they will be adopted in substantially the form outlined above.

### Britain's Industrial Efficiency

During recent years the question of Britain's industrial efficiency, particularly in so far as it affects her ability to compete in world markets, has been widely discussed. A flood of valuable light is thrown upon this matter by a volume published by the Balfour Committee—an official Committee appointed in 1924—on Trade and Industry. For the present the Committee do not state their views, but merely give the evidence. The conclusions suggested by the figures, however, are not altogether satisfactory. Comparing the post-war years with the pre-war years, the output per head is practically stagnant, while the costs of production show few signs of reflecting the industrial changes of recent years. On the question of costs of production, the Committee says: "We may without great risk of error infer that the average rise of industrial costs in the great exporting trades between 1913 and 1925 has been in the neighborhood of 80% to 90%." Between individual industries, however, there were conspicuous differences. For instance, the rise in the case of heavy oil engines was 20%, but in that of Egyptian cotton spinning it was 175%. Dealing with wages, the Committee, after allowance for all necessary qualifications, suggest that the average rise of direct wages costs in the cases for which comparable data are available has been in the neighborhood of 75 to 80%, while the average rise in rates of wages in the great exporting trades, it is estimated, did not exceed 60 to 70%. The report makes it clear that the great export industries, and particularly the heavy industries, are not now making headway as in the pre-war days, their place having been partly taken by the "newer industries," including electrical engineering, transport and artificial silk.

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# New Soviet Railway Tapping Central Asia

## Robbing Peter to Pay Paul

BEFORE the World War Russia had 42,500 miles of railway in operation. She was just then entering upon a railway-building era. But the war interrupted the program, and before peace was established a quarter of the trackage had been destroyed, including nearly 8,000 railway bridges. By 1921 only a few hundred serviceable locomotives were left. Freight cars had been commandeered for homes or split up into firewood. The cushion covers from passenger cars were worn on men's backs and the seats were used as household chairs.

Recently, however, the mileage has been increased to 450 miles past the 1914 figure. Eight new short lines have been laid, and work has begun on plans for opening up new territory. A few American locomotives have been bought as models, and delegations are being sent frequently to the United States to study operation methods.

The Diesel electric engine has appeared, and two new bridge-building plants are projected. Half Russia's old bridges will have to be replaced within the next five years, it is calculated.

Siberia is the scene of most of the new construction work. One line on which work is progressing in Southern Siberia, largely for the purpose of tapping mineral resources, will run 1,250 miles. Another line, to connect Semipalatinsk, in the heart of Asia, with Tashkent in Turkestan, is intended to open up regions where no people except wild tribes now live and to being cheap grain from Siberia to the cotton belt of Turkestan, with the design of so developing the cotton industry.

The "Turksib" Railroad, as the Russians call it, will link branches from the Transsiberian Grand Trunk system to a branch from the Moscow Central Asian system. It will cost $100,000,000, extend 1,500 kilometers (930 miles) and be finished in four years, or sooner, because by the end of this year more than a third will be completed.

There are 27,000 men at work under the direction of "Bill" Shatoff, a former American anarchist. This year's expenditure is more than $16,000,000, of which $2,000,000 will be spent in the United States for equipment—steam shovels, airdrills compressors, perforators, auto dumpcarts, cranes, excavators, stone crushers, concrete mixers, &c.

The railroad was planned to start from Pishpek—now called Frunze, after the late Soviet Minister of War — in Northeastern Turkestan. But that involved an expensive route through a mountain range. Shatoff proposed, and got adopted, a route ninety miles longer from Lugovaya station on the Tashkent-Frunze branch line and saved 27,000,000 rubles. He economized another 12,000,000 and shortened the line seventy-four kilometers, bringing it closer to the eastern end of Lake Balkhash, which some day will be the Lake Superior of Soviet Turkestan.

All that land north of Balkhash is enormously rich in nonferrous metals, copper, zinc and lead. There is gold, too—the whole region is just flooded with minerals.

But that is merely a side issue, discovered after work on the railroad had begun. What counts is bringing Siberian grain to the Turkestan cotton region, which in ten years is expected to produce enough cotton for total Soviet consumption. Hardly less important will be the tapping of the commerce of a vast prosperous area in China and Turkestan—now virtually cut off from central China by the Gobi desert—where the leading cities of Chuldia are within easy reach of the Turksib Railroad by water transport along the River Ili.

Russia has also shown a tendency, to bid for more passenger traffic by advertising the cheapest and quickest route from Europe to China, offering one train a week over the Transsiberian line, making the journey, from Pairs to Vladivostok in thirteen days. This train's run from Moscow to Vladivostock has been reduced forty-eight hours in the last two years.

The 1,000,000 men now employed on Russian railways represent almost a 50 per cent. increase since 1913. A great many more passengers are recorded, too, the 184,000,000 total for 1913 increasing to 211,000,000 in 1924-25 and to 262,000,000 last year. Freight tonnage, on the other hand, continues much below the 1913 figure. It took 33,000 freight cars a day to handle 156,900,000 tons in 1913 whereas last year 27,489 were used daily to handle 66,900,000 tons.

The other side of the Soviet railway story is told by Junius B. Wood, in his recent book "Incredible Siberia." Wood says: "About 25 per cent. of the passengers on the trains pay for their tickets, the others ride on passes, issued at the request of some government department and charged to that department. The weekly Moscow-Vladivostok express, with a run of 5,831 miles in 10 days and two hours, frequently does not carry more than $500 in cash fares."

"Most of the passes go to the personnel of the people's commissariat of transportation. Each worker, which is a lower classification than employee, is entitled to two passes annually for himself and each member of his family. If he lives in Vladivostok, he can go himself or send any or all of his family, twice a year, to Batum *via* Leningrad and return, a distance of 17,600 miles, more than 30 days of continuous riding. Not many indulge in such a long rolling spree, nevertheless the wives, daughters, cousins and sweethearts who commute over the 5,831 miles between Vladivostok and Moscow practically fill the "hard cars."

"Though the free passes are unlimited, possibly they are not such a total loss as might appear on the surface. The railway workers wage is low, many receiving $17.50 a month in addition to quarters. Giving the family a couple of free rides each year and an opportunity to see the country is part compensation. The passes charged to other branches of the government, making an impressive showing in the transportation commissariat's total of annual receipts, may amplify the trick of taking money from one pocket and putting it in another, but the practice has an indirect advantage for the traveling public. If the trains were not filled up by pass holders, obviously only one fourth as many trains would be needed or available for cash passengers. A train which now runs weekly could run once a month and satisfy the patronage.

"The paying passenger usually fails to appreciate a system where trains and steamboats are not run for revenue. In Moscow, he may order his ticket a week in advance but he will not receive it until the day the train leaves and it is known how many places will be left over after all the "deadheads" are cared for. Possibly there will be none and he can wait another week. Taking an express train at intermediate stations is more of a gamble. Not only the pass holders who have preference are there but the station master does not know how many places will be vacant until he receives a telegram from the train conductor, a few hours before it arrives. Half an hour before the train arrives the ticket office opens, usually a round hole in the wall no larger than a saucer, and the riot starts.

"The waiting crowd, some of whom may have been living, eating and sleeping on the station floor for days, rushes the window. The harassed natchalnik, who has been beseiged by requests for tickets, gives a sigh of relief, puts on his red cap and goes out on the platform to receive the train, his troubles over until the next train is due. There may be 200 who want to go, 40 places on the train and 35 of these preempted by the individuals who have a pass or "pull." The first five who have stood patiently in line for hours get the surplus place and the cashier slams his window and turns down the others as coldly as a pay-car passes a way-side tramp."

# Japan's Oil Problem

THE FOOD SUPPLY is perhaps the gravest problem confronting Japan to-day. Next to that is the question of satisfying her fuel needs. Mr. Inoue tells us in a recent issue of the *Jitsugyo no Nihon* (Tokyo), that the amount of oil produced in the country is not enough to answer one-half of its requirements. Moreover, the demand for oil has shown a sudden increase. Importation of oil into Japan is now very large. We read:

"The production of oil in Japan reached its record year in 1915, when it amounted to 2,600,000 koku (a koku is 48 gallons). Since then it has been steadily on the decline. In 1924, the figure stood at 1,500,000 koku, and in 1925 at 1,530,000 koku; it was only 1,450,000 in 1926. But of late, the demand for oil has gained steadily with the development of steamships, airplanes, and automotive vehicles. As a result, in 1925, the importation of oil into Japan rose to 2,170,000 koku. In other words, it was 600,000 more than the country produced that year. And it amounted in value to 63,400,000 yen (about $32,000,000). These figures do not include the oil imported by the Navy, which amounted to at least 400,000 tons. Within ten years from now we shall be compelled to import some 1,000,000 tons of oil."

Under the circumstances, the writer points out, the imperative duty of the chemical industry of the country is to find some substitute for oil, He reviews at length the various synthetic fuels proposed by the chemists of the world, but he finds that the most promising quarter to which Japan could turn for her fuel salvation lies in the direction of the oil shale, not in Japan proper, but in Manchuria. He says:

"In our country, in Hokkaido, and in the prefecture of Shimane, a small quantity of oil shale is found; but that is all. But at Fushun, Manchuria, the supply is practically limitless. There is 1,200,000,000 tons within 500 feet of the surface; 2,400,000,000 tons within 1,000 feet, and 4,800,000,000 tons within 2,000 feet, it is estimated. Its oil content is from 9 to 10 per cent. An average of 5 per cent. could be extracted from the shale by the Scotch

(*Continued on page 220.*)

# Japanese Bank Defies Attack

## The Ten-Million-Dollar Mitsui Building in Tokio is a Veritable Man-Built Gibraltar

*By Howard McLellan*

ON a square in the heart of Tokio a toiling army of Japanese workers, generaled by American engineers, are warping into place huge blocks of granite. A few years ago the ground now buried beneath tons of steel and stone was strewn with the ashes of ancient buildings leveled by the sweep of fire which came in the wake of an earthquake.

These Nippon workmen bend to their tasks with patriotic devotion, hurrying faster than they would at an ordinary building task. And why not? They are raising a monument to the House of Mitsui, the first of the great Japanese banking families upon whose far-flung enterprises the sun never sets and who have woven into their banking and industrial activities the precepts of an ancient religion and time-honored family customs dating back 14 centuries.

In this zeal they reflect a sort of reverential admiration for a family whose name stands as a symbol for unmeasured power in international trade and finance. In the counting houses of the world it is said of the family:

" Ah, yes, Mitsui—when you mention Mitsui you are speaking of Japan, for Mitsui *is* Japan."

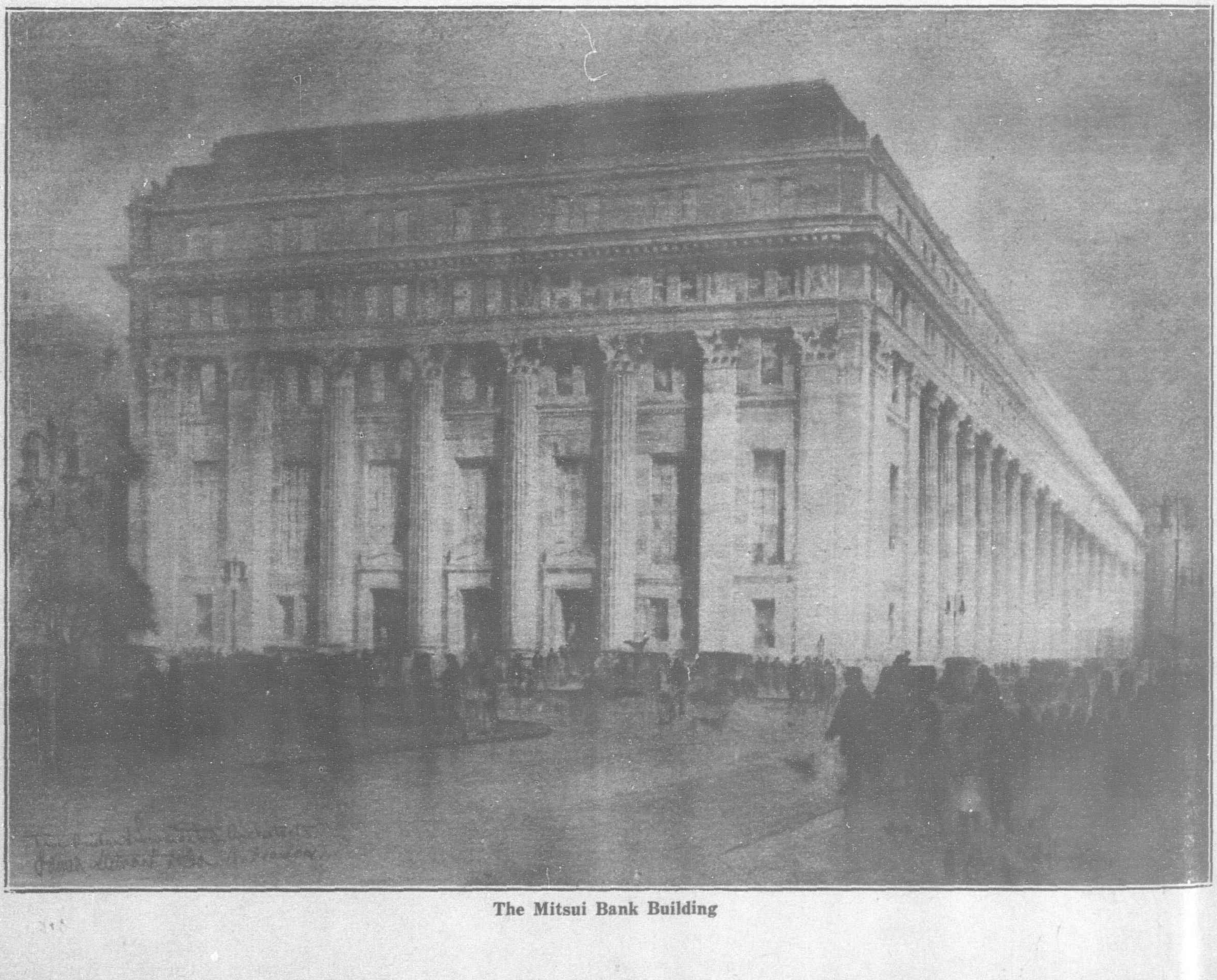
There is hardly another way of gaging the size and power of Mitsui interests unless, as frequently happens among those who know Mitsui best, they are spoken of as " Morgan, Rockefeller, and Ford all rolled into one."

But it is not the size of the Mitsui enterprise nor the family wealth nor the classic beauty and magnitude of the building which this army of native toilers is erecting that attracts the interest of engineers and bankers the world over. The outstanding importance of the structure is that it represents the triumph of engineering over the destructive elements of nature and the attacks of predacious criminals. Here, its builders say, is a banking structure that is impervious to earthquake, fire, and flood or against the attack of burglars, bandits, or mobs.

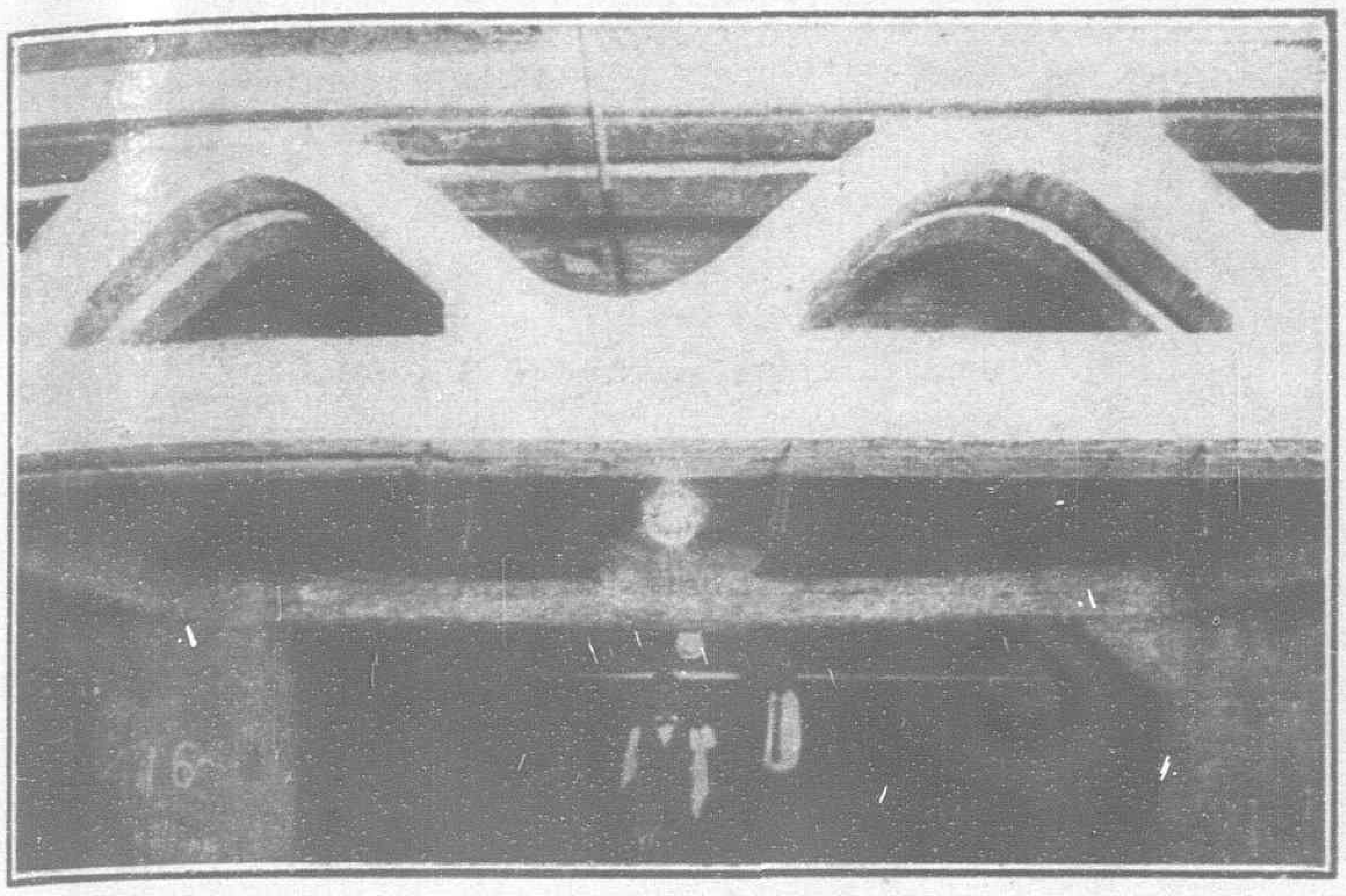
Asked to describe its impregnability, a representative of Trowbridge and Livingston, the American architects who are building it, said:

" The Mitsui building is the last word in formidable bank construction. If it were possible to stand it on end, the skeleton construction is of sufficient strength to withstand the strain. If it were possible to move it into the sea it would remain intact. Against fire it will prove impervious and it cannot be attacked successfully by mob or bandits. It has been built to move as a unit, and primarily to resist earthquakes."

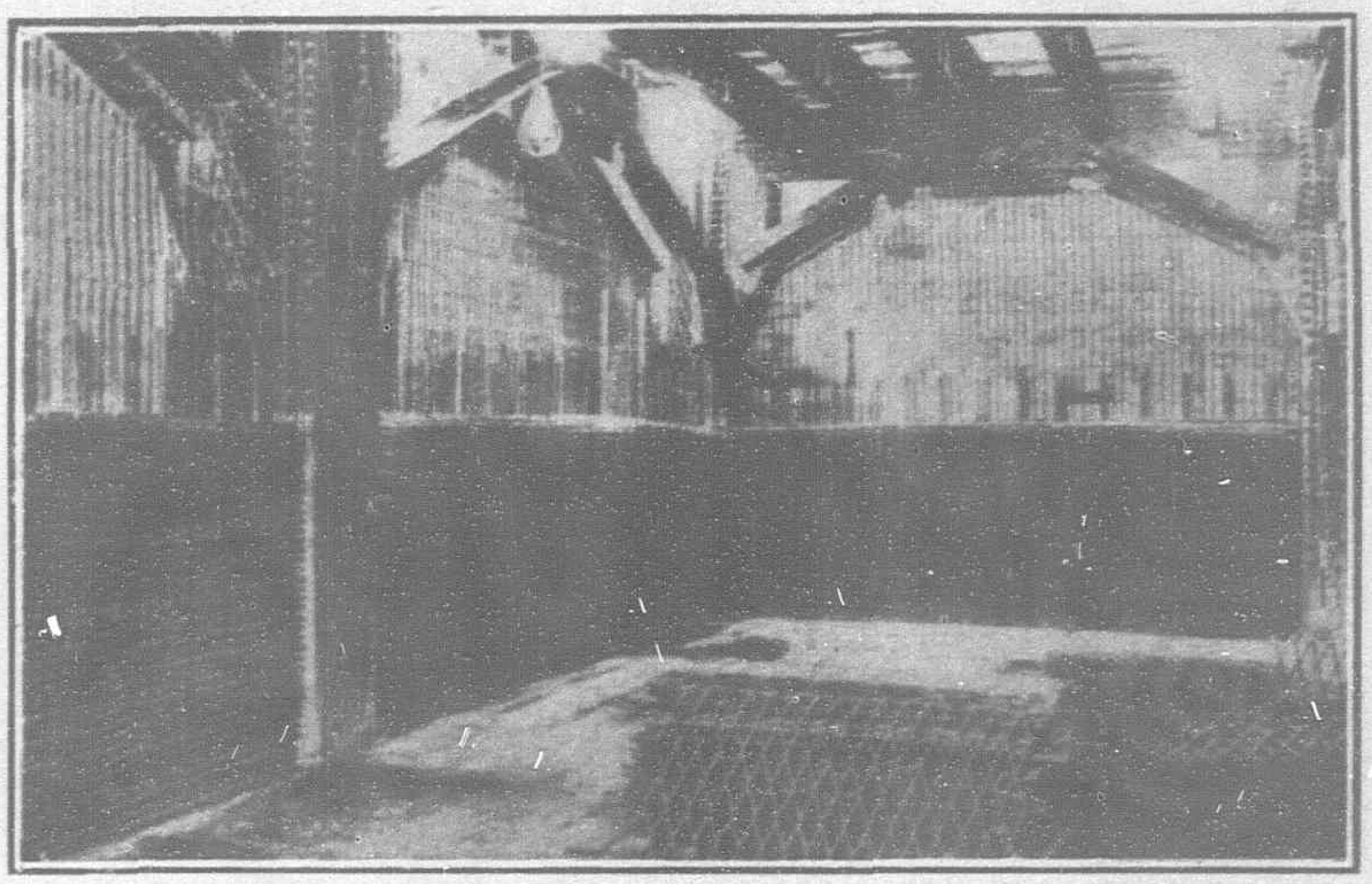
In the earthquake of 1923 the old Mitsui building was destroyed, hence the determination of the concern to invest 10,000,000 dollars in a new building that would preclude destruction by the force of earth tremors. The earthquake problem was put up to Samuel C. Weiskopf, senior member of the American engineering firm of Weiskopf and Pickworth. Although the requirements



The Mitsui Bank Building



In the Basement of the Building



Web Construction of Walls of Vaults

called for a radical departure from accepted methods of construction, Mr. Weiskopf, in collaboration with the architects, devised a form that met with the approval of the Mitsui directors and their experts. Months of research both in Japan and America were necessary before the new form was finally adopted, and the contract to build given to James Stewart and Company of New York.

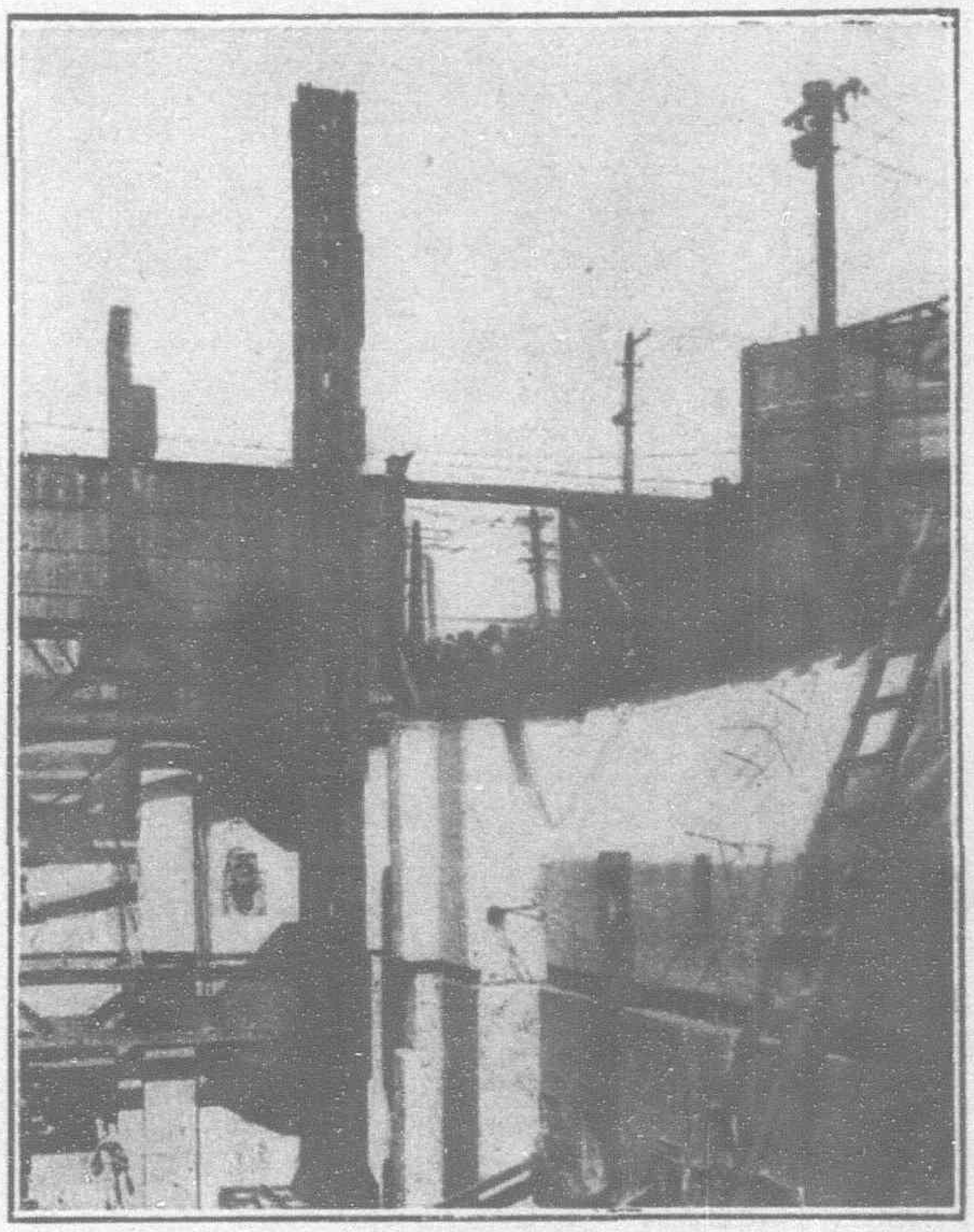
The new building is an imposing and dignified structure. Its length stretches a full block of 360 feet so that three sides face on streets. The architectural treatment consists of a row of granite Corinthian columns extending to the third floor, flanked on the end bays, on each side, by substantial pylons. The entire area of the first floor is devoted to a great open banking room 41 feet from floor to ceiling, through which are extended slender marble columns. Four floors above the banking room are devoted to offices for the various Mitsui organizations.

The important features in the construction of the bank can best be covered by treating each stage in the order of its building. To make the foundation impervious not only to earthquake but to the action of water—the site of the building is but a short distance from the sea—a thick concrete " pan " was sunk into the earth. A four-foot " mat " or floor of reinforced concrete was laid 20 feet below water level and each of the four sides of the " pan " were built up to the earth's surface.

The " mat " was a construction feat of some proportions. It was poured in 70 sections of 800 square feet at a time and, in addition, its exterior surface, which rests upon the earth, was beveled to minimize, or deflect, earthquake shock by eliminating sharp protuberances. The entire " pan " forms a monolithic casing, or cradle, a unit by itself, designed to distribute evenly to the steel structure any shock. It is the first line of defense against subterranean tremor and it will also successfully resist any attempt at tunneling.

To this mat are anchored the specially designed steel columns. It was necessary to go well outside the range of current engineering practice to devise these columns and also develop an entirely new form of steel girders and splicing to meet the distortion and bending movement peculiar to earthquake action. Explaining these features of the construction the engineers say :

" Since a lateral force of one tenth the weight of the superincumbent parts of a structure would produce very severe bending actions, flexural strength of all the members obviously was a controlling feature of the design. The large tensile forces developed by bending and the reversal of stress occurring in earthquake vibrations dictated the suitability of a structural steel frame.



The "Pan"

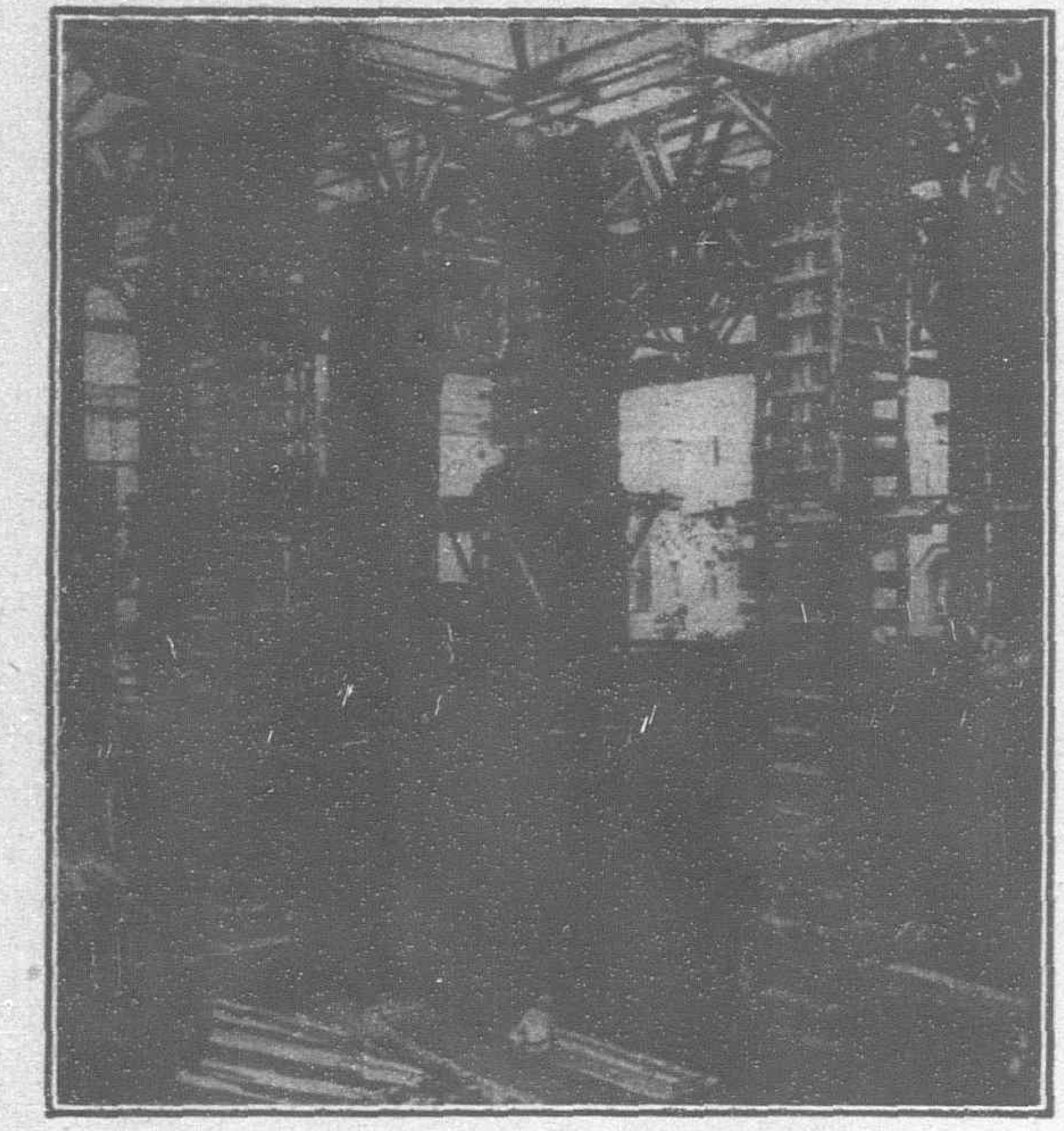
" Consideration of the distribution of bending stresses in a steel frame tier building, when these bending stresses are large compared with the vertical loads, suggests the typical proportioning of the members of the framework for strength should represent a strength distribution along cellular lines. The members then should be heaviest at the junction of column to girder where the connection itself is subjected to the maximum moment, becoming more slender toward mid-length. This is the manner in which the members of the frame were proportioned. Columns splices are at midstory, the point of contraflexure, and this is a radical departure from the usual order.

" One special requirement of the Tokio building laws that is framed with a view to providing maximum earthquake resistance is that in splices in columns, the abutting surfaces shall not be considered as transferring load but that a riveted splice of sufficient strength to carry the entire stress shall be supplied. So far as this requirement has been met heretofore it has been done by putting outside splice plates at column joints, piling up these plates to the thickness necessary to provide sufficient area and extending them a long distance each side of the splice in order to provide sufficient rivets to develop them. This form of splice is very cumbersome and of little practical value as a protection against shocks. The Mitsui column lends itself admirably to a riveted splice.

" The splice plates are placed in the four planes of the column lacing all the splicing rivets being in double shear. The first splice in all the large columns is located at the point of contraflexure between the first and second floors. Although theoretically no bending stress would have to be transferred at this point, nevertheless, by splicing the column angles at staggered points, the full value of the column was developed. The upper splices were designed in a similar manner, the loads being of course much smaller. Between the second and third floors the splice was again located at the point of contraflexure, but in the fourth story the bending moment was sufficiently small to place it a short distance above the floor line."

The steel skeleton forms the strongest line of defense. The entire skeleton is covered with heavy thicknesses of reinforced concrete so cast and joined that a shell of cement, stone and steel, practically one huge casting, offers another defense not against earthquake but against fire or human violence. The use of concrete in this manner makes possible the statement that if the building were turned upside down, or on end, it would remain intact.

Another feat in engineering, hitherto unknown in bank building, is the manner in which the massive granite columns



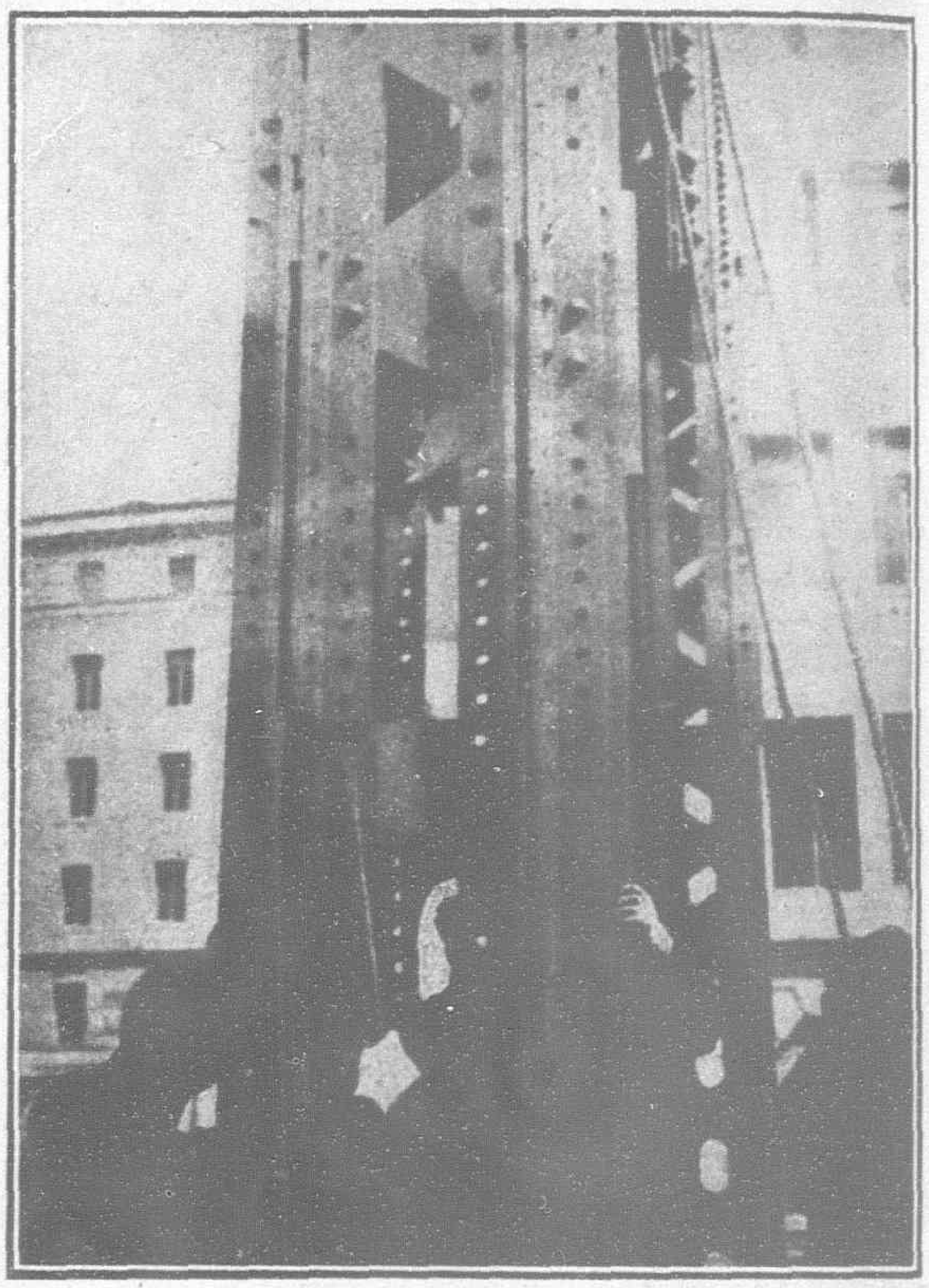
Concrete

which grace the exterior of the building have been built. Instead of resting the granite against the inner steel columns, another layer of concrete has been imposed between granite and steel, thus creating a still more formidable element of resistance. The use of bronze and copper for windows, copings, cornices, and doors throughout again multiplies the resistance to bandit and mob attack as well as earthquake and fire.

All windows, doors, and sky-lights are equipped with what the Mitsui engineers describe as the heaviest and most elaborate fire-shutter system ever installed in a commercial building. While designed to resist fire, this system will also ward off attack by flood or mob. In the event of such attack, the shutters may be controlled manually or electrically, not only from various parts of the banking room but from remote-control stations throughout the building, even from two penthouses on the roof, which house auxiliary fire pumps and elevator machinery. In the event of fire, the shutters close automatically. In many respects the shutter system resembles the bulkhead system on modern unsinkable steamships.

A further protection against fire is provided by an auxiliary gasoline engine plant which operates pumps, an independent electric lighting system and an emergency elevator. Installed primarily as a fire-fighting agency, this system will provide light and a means of inter-communication within the bank should a mob attack it and the staff of the institution be compelled to remain within the building, cut off from outside help. An artesian well sunk under the foundation mat will supply the water. A reserve supply will be kept in huge armorplated storage tanks in the sub-basement. Kitchens, dining rooms, and space for living quarters are also provided for in the plans so that if earthquake, fire or flood again visits destruction upon Tokio, the human element in the Mitsui bank may be isolated but they will be able to continue to function.

In the effete west, we are prone to believe that our banking institutions contain the last word in 100 per cent. burglar and bandit proof vaults. The big vaults in some of our American banks present a formidable argument against bandit attack, but it is said that the new Mitsui vaults, when completed, will exceed in their impregnability anything heretofore conceived. There are seven such vaults in the Mitsui building, in which will be guarded some $250,000,000 of deposits, tons of important bank papers and securities, and the valuables of thousands of safety deposit box holders. The safety deposit vaults are in the main basement and are said to be the largest ever built. The trust company and bank vaults are on the main floor, while four other storage vaults are in the basement. The walls of each are of special construction of reinforced concrete and steel, 30 inches thick. In addition to the usual reinforcing strips of steel used in concrete, there are layers of steel webbing. A net work of copper wires has also been built into the walls in such a manner that upon slightest penetration of the wall surface, from within or without the vaults, alarms will be sounded throughout the building and in nearby police stations.



Telescopic Splicing

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## Japan's Oil Problem

(*Continued from page 217.*)

dry-distillation method, and about thirty-two pounds of sulphate of ammonia to an English ton. If this be true, then, down to 1,000 feet there is in Fushun an oil reserve of 120,000,000 tons."

The chief item of expenditure in this particular enterprise, namely, that of the mining operations, is practically nil, the writer points out, because the shale lies just above the coal bed at the famous Fushun mine, and because a large section of the coal-mining there is now conducted on the open-cut method. The oil shale must first be removed before the coal-bed is reached. The South Manchuria Railway Company has completed, we are told, all the preliminary experiments in connection with the distillation of oil from the shale, and is about to establish a plant in the near future. Coal-tar produced from low carbonation of coal is receiving a great deal of attention in Japan, the writer tells us. An average production of eighteen gallons of liquid feul to a ton of coal is expected—and sometimes as high as twenty-six gallons under exceptional condition. The hydrogenation of naphthalene and the production of liquid fuel from vegetable and animal fats are other phases of research commanding constant attention from Japanese chemists. After a detailed description of the method of production of a liquid fuel from the water-gas, similar to oil, Mr. Inoue thus enumerates its advantages:

"By this one gains the advantage of commanding almost an unlimited raw material which could be easily procured, like water-gas. And the comparatively low temperature needed in the process, say about 300 degrees, is another advantage. Still another is that it does not call for an extremely high pressure. All these combined should encourage the establishment of this line of chemical industry. Moreover, as the raw material used does not contain sulphur, the liquid fuel produced is of excellent quality. For that reason, a country like ours, which is suffering under the constant threat of a lack of oil, should devote its utmost efforts to carrying on this research and endeavoring to find it in the solution of her oil question."

The chemical laboratories of Japan are strenuously carrying on experiments with various synthetic or blended fuels, using alcohol as the principal ingredient, Mr. Inoue tells us; but we learn that they are far from having solved many of the difficulties.

# Commercial Aviation in China

### By Capt. Theodore Ching

It is hard for the average person to realize that it is safer to travel by air to-day than by any other means. Some of the largest insurance companies have set their seal upon air transportation ahead of rail and motor bus, and secondary only to steamers. This will prove to you that aviation has come to stay and will contribute to the development of any country.

Aviation in China, although still in its infant stage, is not a new means of transportation, for according to history, the Chinese were the first to study the air with aircraft or kites. Aviation took place in China immediately after the Revolutionary war in 1911. It was during this time that some far-sighted military officials were convinced that aviation has something to contribute to the country's development.

In the year 1912, two officers of the Chinese army returned from Europe with airplanes and sufficient training to fly upon arrival in South China. An aviation school was established, and these two officers were very successful until one of them was accidentally killed. This accident gave aviation a black eye, and resulted in no further activities until in the year of 1913 when the Northern or National Government sent students to Europe and brought back more materials and knowledge of aviation. An aviation school was started in Peking and students from the various military institutes enlisted. This school, which is still known as the New Yuan Aviation School, turned out hundreds of expert flyers. The Chinese military students make excellent aviators, and no situation bewilders them. This school was successful in every way, and in all other schools it was made compulsory to take up elementary aviation. One academy was converted into a factory and assembling plant, employing approximately 800 skilled men and scores of expert engineers and instructors. This assembling plant and advance school of aviation functioned as long as the British were willing to make loans to the Government for maintenance and operation, and also salary for their nationals who may be employed through their Legation. This aerodrome is not only the best equipped, but the largest east of Suez, and housing approximately 175 airplanes. In the year 1919, China as one of the signatories of the international air convention, while formulating rules for air travel, laid special emphasis on the free development of aviation in the country. China, however, has failed to ratify her adherence to the convention and takes the arbitrary attitude of strangling all efforts to promote the development of commerical aviation in the country.

This action was taken by the War Department immediately after the change of administration in the capital. During this year the Chinese Government rules that aeroplanes are instruments of war, and therefore they forbid their importation for any purpose whatever by Chinese or foreigners. Aeroplanes since classed as instruments of war, America and European nations supposing to have agreed not to sell China any materials, aeronautical activities were again suspended. Immediately after the Great War, Great Britain with all her surplus war materials, soon found a dumping ground, and that was China. Through British diplomacy again, she has made China a loan of approximately four million pounds, sterling, all in war surplus aeroplanes, and interest that was derived from the loans was to be spent in developing China by engaging British instructors, British engineers, and British advisers to the War Department. Occasionally, when the payments of interest are in default, their diplomatic representatives would not hesitate to use pressure to get money from other sources.

Since the contract was signed with the Vickers Company, through the British Air Ministry, aeroplanes of the bombing and other military types began to arrive continually, and how they got passed by the Customs I will leave to your own judgment. Remember, the British controlled the Customs administration then.

In the year 1920 aviation was again revived and there were activities of all kinds in North China. The Bureau of Aeronautics, under the War Department, mapped out air routes almost covering the whole of North China. I am sorry to say only a few were in operation two years after. Up to 1922 approximately 200 aeroplanes arrived, and all these, according to the Constitution of China, are war implements.

The Vickers Company had a ten-year contract to supply the Chinese Government with aeroplanes and materials, and during the ten years the Bureau of Aeronautics was prohibited from purchasing planes from America and other nations, it was agreed to use a few Americans as instructors. It was in 1920 that steps were taken to employ two pilot instructors, and it was in this same year that I received my appointment through the recommendation of the British Advisory Board as Chief Field Superintendent. While holding this post, it took me fourteen months to find out what was going on. It was wholesale smuggling of war materials, and taking advantage of the eagerness of the Chinese to develop commercial aviation. They have spread propaganda about civil aviation which they are developing for the Government of China.

In the summer of 1921, the longest route, which was the Peking to Shanghai air line, cost the Government thousands of dollars.

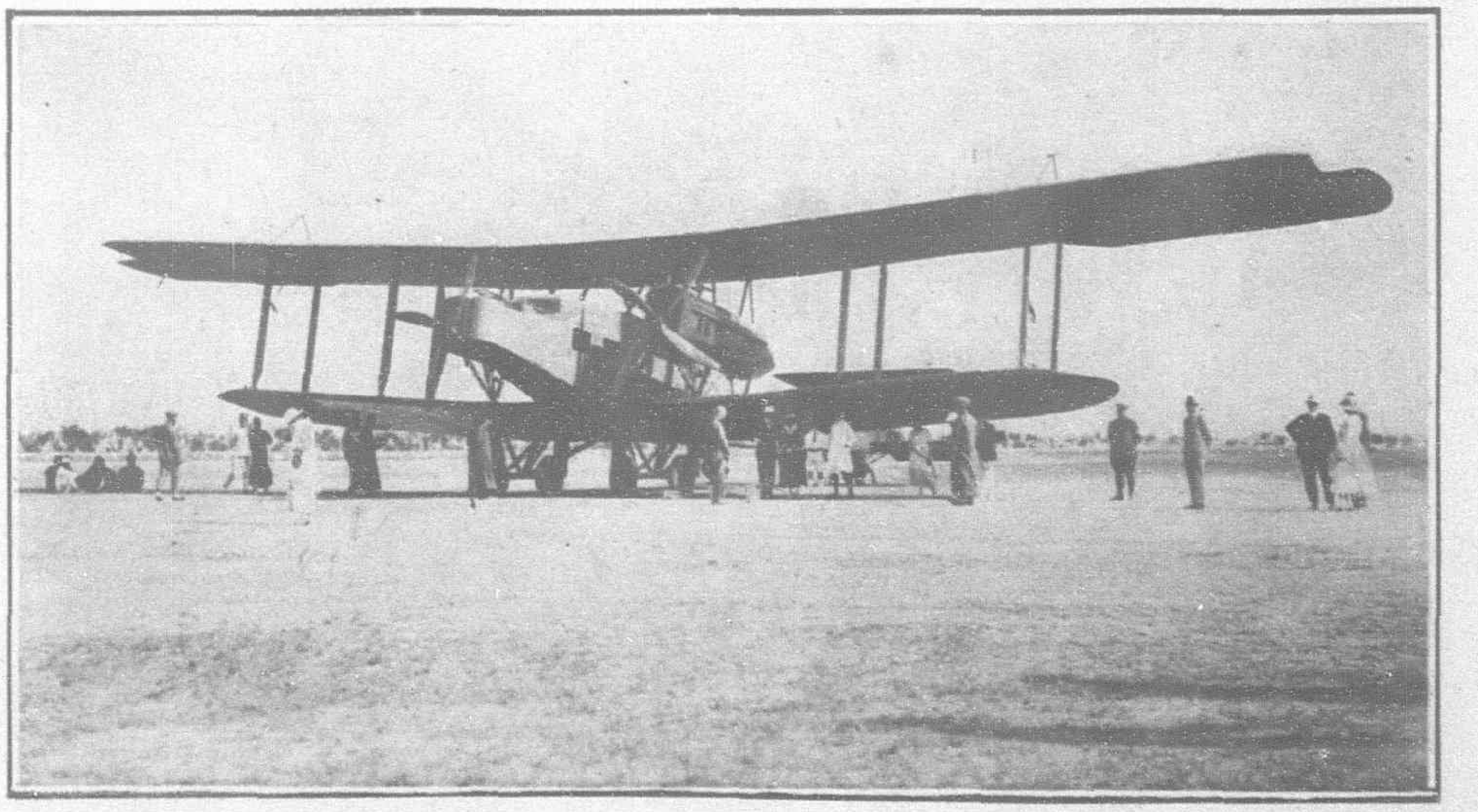
Hangars were built along the way posts, and mainly in Shanghai. Negotiations were completed in every way necessary and the date of the inauguration was set and it was heralded by the whole world as the greatest tribute to the new progressive movement in China.

This Peking-Shanghai air line, one of the greatest aerial enterprises in the world, and certainly the boldest move to emerge from age old decadence and come to live with modern nations ever made in China, has collapsed, apparently through the high militarist parties who have seized the reins of government and are working strongly against any peaceful evolution of so useful a development as aviation.

It is very disappointing that commercial aviation during the past few years was welcomed with such great warmth and enthusiasm and to be immediately confined to a few selfish factions.

In the spring of 1922 war broke out between the Manchinise and Chihli province. The two factions were drawing their loyal troops into position and also demanding war material and reserves from Peking. Again commercial aviation was at a standstill and flying was confined to military ends only. Right at this time when an armed clash was inevitable, I was placed in a neutral position and had charge of shipping war planes to each faction in other wards. I was feeling both ends of the war game to prevent either party

(Continued on page 224.)



At the Lunghua Aerodrome in Shanghai

# Pile Foundations in Shanghai

*By H. F. Meyer**

DURING the past years the Engineer-in-Chief of the Whangpoo Conservancy Board, Capt. H. von Heidenstam, has caused various experiments on soil analysis, pile driving and pile loading to be made and the writer has been detailed for several of these tests during the Shanghai Harbor Investigation, 1920-1921, and subsequently.

This paper attempts on the basis of these tests and from general experience as to settlement and bearing capacity, to open up a discussion on a subject which has so much bearing upon the work of all builders in Shanghai.

The following notes do not pretend in any way to be exhaustive. It is the author's hope that several of the local architects and engineers in the discussion of this paper will add their experience to that of the author in order to throw as much light over the complex problem as possible.

The study of clay and foundations in clay is still in its infancy; even a reliable pile driving formula has not yet been developed.

Mr. Henry Adams has applied thirty-nine different pile-driving formulae (Trans. Concrete Inst. vol. VIII 1916) to the data referring to one particular pile, with the result that he obtained thirty-nine different results. The "ultimate loads" ranged from 37 tons (Hurtzig) to 333 tons (Rankine), and the "safe loads" from 5 ton (Rivington) to 67 tons (Rankine). This does not indicate that the formulae are absurd but that no universal pile driving formula exist, and that each applies to a limited kind of soil.

The formula called the Wellington or *Engineering News* formula which is at present the most extensively used in Great Britain and the United States, is as follows:

$$P = K.\frac{Wh}{S+C}$$

Where $P$=Statical *safe* load in pounds against penetration
$W$=Weight in pounds of the hammer
$h$=Drop of hammer in feet at the last blow
$S$=Average penetration during the last 2 blows in *inches*.

Terzaghi shows that $C$ depends on *both* the nature of the pile and the resistance against penetration.

In the local soil the constants $K$ and $C$ *for ultimate load* should be $K=8$ and $C=1$, these give in all ordinary cases, where a heavy drop hammer is employed a result which can be used.

The formula will thus read:

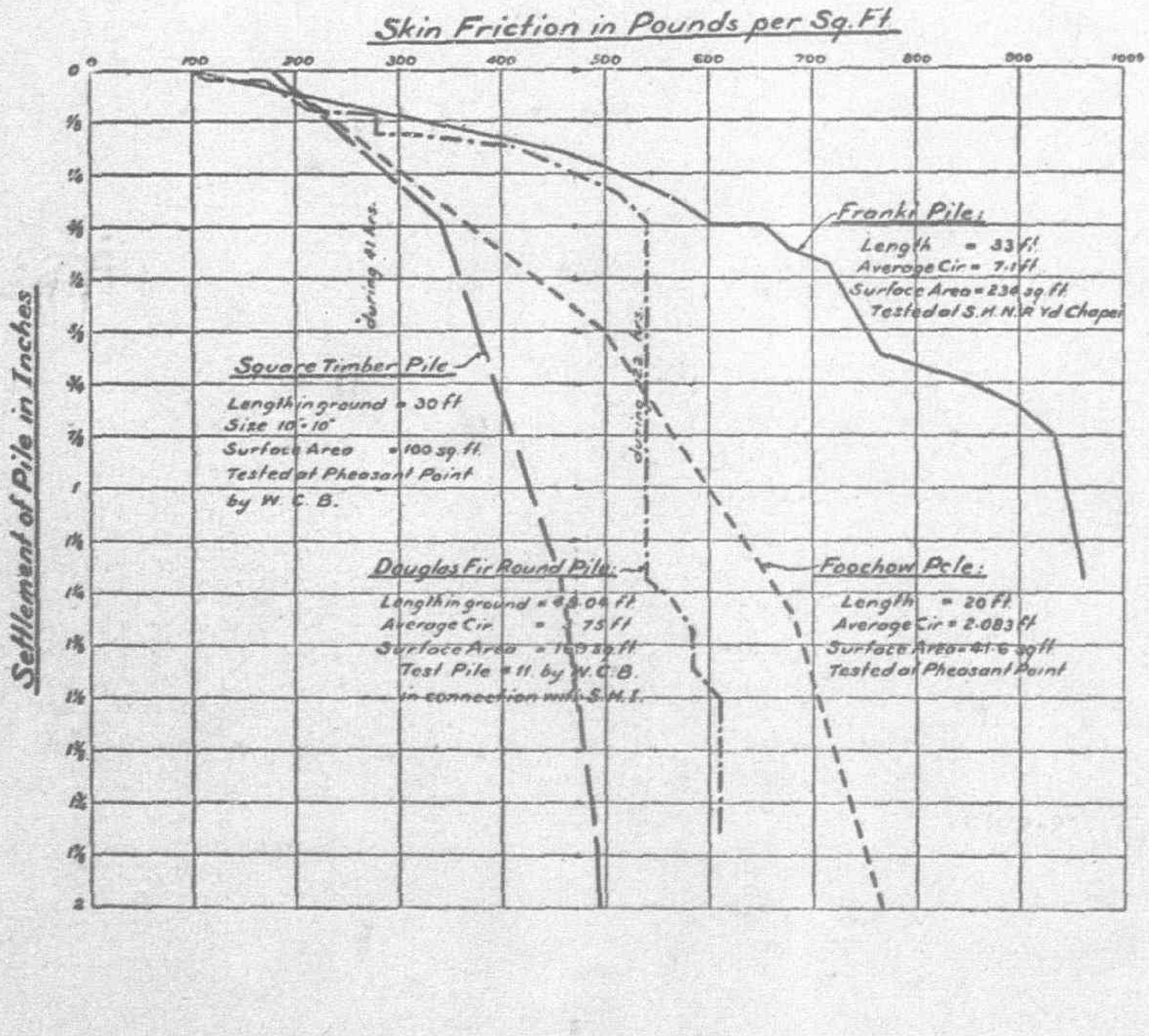
$$P_1 = \frac{8\ Wh}{S+1}$$

Dr. K. Terzaghi, the well-known soil specialist, in refering to the tests of the Whangpoo Conservancy considers pile driving formulæ useless in Shanghai. The above formula can, however, serve as a guide where time and money are not available for loading tests.

## Point of Failure

The question of the point of failure of a loaded pile is more complicated than might be expected. In testing a single pile a settlement of $\frac{1}{4}$-in. or even less is often quite arbitrarily considered as failure, in the belief that no pile should be allowed to sink more than this much under a foundation to insure against uneven sinking of the foundation as a whole.

The settlement measured when testing a single pile, originates, to begin with, mostly from elastic deformations in the surrounding clay. As this elastic settlement in the clay under a large foundation in Shanghai usually exceeds one foot, it seems absurd to adhere to a definition of the point of failure for individual piles which is based upon a small elastic settlement.



In the illustration, four "loading curves" for four different types of piles are shown. Sinking in inches is shown vertically and skin friction horizontally. By "skin friction" is understood: total load divided by the area of the sides of the piles. This gives nearly the true skin friction for the three kinds of wooden piles shown, as their end surfaces are small. The friction surface of the Franki Pile is very difficult to determine exactly, as it is bulky and uneven and the end area is so large that the true skin friction is considerably smaller than given in the table. The higher bearing capacity agrees with recent European test results according to Prof. C. Terzaghi. It is explained by its large bottom surface, its irregular shape and also by the consideration that when an ordinary pile is driven into clayey soil, pushing aside the material, the capillary water in the clay will take over most of the pressure and it takes long time for the solid particles in the clay to come in contact again. As a matter of fact the solid particles will not entirely regain their former positions until the surplus water by a slow process has found its way up to the surface of the soil. As long as the main pressure rests on the capillary water the friction in the soil is very small, and only after several years will a pile get its full bearing capacity. For a Franki, Simplex or similarly made pile it is however different; the hole made in the earth before the casting commences serves as a sort of sump for the capillary water which is squeezed out into the coarse concrete material by the strong ramming. Such piles will thus from the beginning have a skin friction which it will take a long time for other piles to obtain.

The round tapering Douglas Fir pile has a definite point of failure, at about 530 lbs. per square feet. The skin friction seems to have been exceeded at that point and the pile then cuts itself through the soil.

The two other curves for square and for short round piles have the characteristic shape found all over the world for piles driven in clay and gradually loaded. Up to nearly 200 lbs. per sq. ft. of skin friction the settlement is only very small; thereafter an elastic compression of the surrounding clay commences whereupon a break in the slope of the curves is seen, denoting the point where the skin friction is exceeded and the bearing capacity of the compressed lump of clay under the butt comes largely into action; finally failure, shown by rapid drop in the curve.

The sudden collapse of the round tapering Douglas Fir pile may be accounted for by the fact that such piles are generally fresher and more sappy than most other wooden piles purchased in the local market, and that the sap under the high pressure may come out to the surface thus reducing the skin friction.

The author would in accordance with the above description consider that the square timber pile has failed at a settlement of $\frac{3}{8}$-in. and a load of 340 lbs. per sq. inch, and the Foochow pile at a settlement of $\frac{5}{8}$-in. and 500 lbs. per sq. ft.

It is a well known fact that steel and other elastic materials, when exposed to a strongly intermittent load, fail at a lower stress than under a stable load. This was also found to apply to loaded friction piles. Douglas Fir piles which would only "fail" at a load over 500 pounds per sq. ft. friction area would already have

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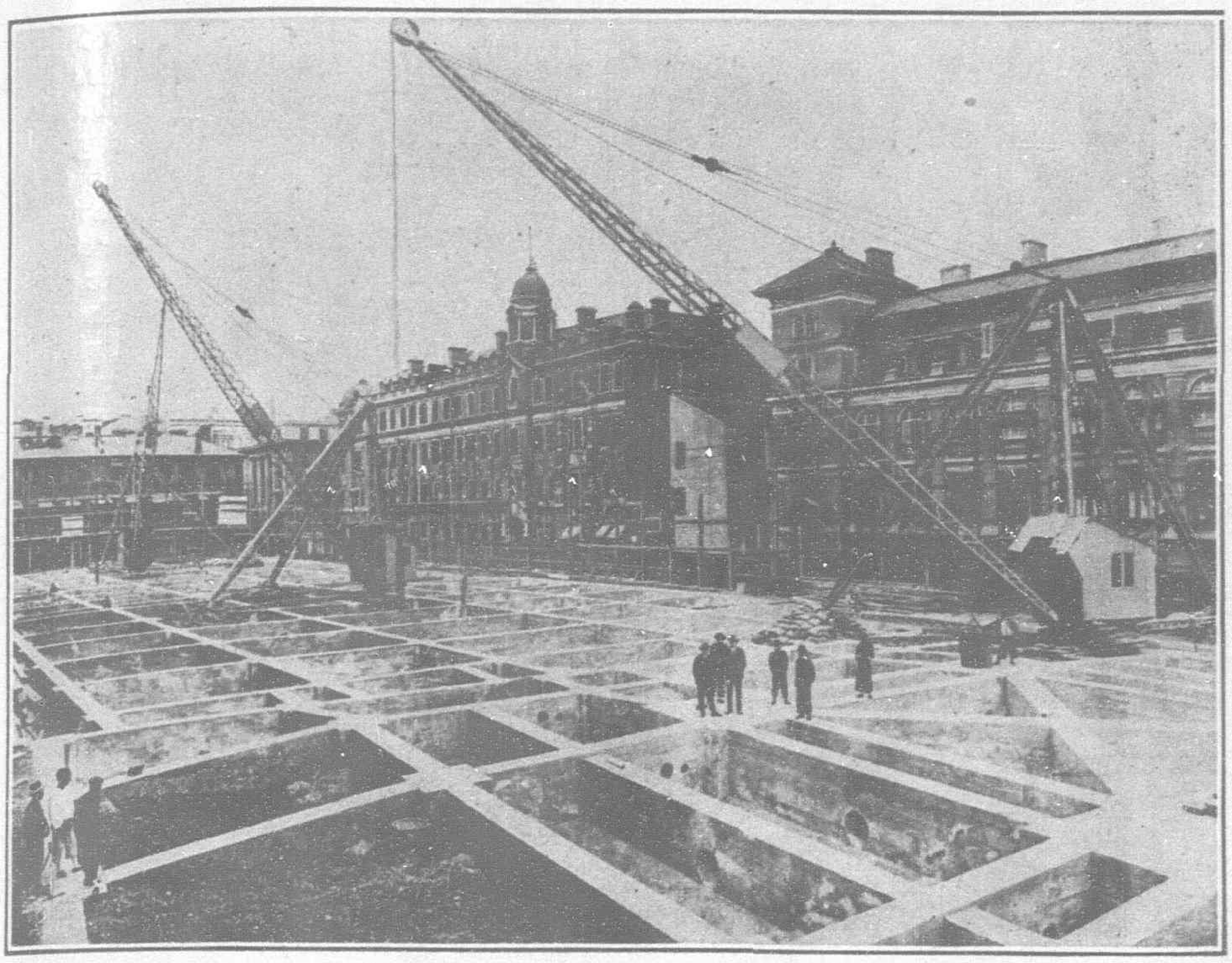
*An address delivered before the Engineering Society of China.



Building of City on a Raft

a small permanent penetration at 400 pounds. If loaded repeatedly up to 400 lb. per sq. ft. the pile would thus "fail."

Most of the Board's test piles were only from 10 to 45-ft. long, but a few longer piles were also tested. The results seemed to indicate a slight decrease in skin friction per square ft. of pile surface the longer the piles were. This is quite in accordance with tests made in other parts of the world.

The skin friction increases approximately 10 per cent. during the 1st year.

In accordance with more than 100 loading and driving tests made by the Board, tapering piles driven with the smaller end down have a 25 per cent. bigger carrying capacity per square ft. surface area than piles with parallel sides. Wooden piles and concrete piles gave in all respects similar results.

The ultimate load for round piles was found to be about 500 pound per sq. ft. friction area.

If the load is intermittent (total unloading and recharging) the ultimate figure is only 400 pounds per sq. ft. friction area for round piles.

It is recommended to have at least a factor of safety of 1.5, thus for:

Direct load on round piles, the safe load is 300 lb./sq. ft.

Direct load on square piles, the safe load is 225 lb./sq. ft.

Interm. load on round piles, the safe load is 270 lb./sq. ft.

Interm. load on square piles, the safe load is 200 lb./sq. ft.

## Distance Between Piles

When it comes to the bearing capacity of a single pile quite reliable information can already be derived from the many tests made in Shanghai; but it is a grave mistake to draw any conclusion from the bearing capacity of such a single pile as to that of a great number of piles under a large foundation, without carefully considering the question of spacing.

Each pile as well as each foundation has a certain lump of soil surrounding it, which is directly stressed by the forces loading the pile. Several efforts have been made in Europe and America to determine the size of this directly charged mud. Small scale tests have been made by driving a pile through layers of differently colored clay and by the displacement of the layers determining the spread of the driving force into the soil. As soon as two piles are so near each other that the two volumes of influence cut into each other the question becomes more complicated. The size of the affected prism of soil is so large that in all ordinary cases under a footing or a foundation they will overlap. The soil will thus be under greater pressure than when only a single pile is involved, the angle of friction will be smaller and the skin friction of the piles will *decrease.*

The distance from center to center of two friction piles driven next to each other should never be less than half the circumference of one pile if the whole friction area is to be utilized; the two piles taken as one unit will then present the same friction surface as would each of the two piles individually added together. If there are more than two piles the circumference of the whole cluster of piles should be bigger than or equal to the sum of the circumferences of the individual piles in the cluster. The same should apply to any part of the cluster, thus in case of a rectangular foundation with equal distances between piles, and all piles square and of same size, with a side $a$, the length of the entire foundation being $A$ and the width of same $B$, the ideal distance $z$ between piles will thus become:

$$z = \frac{A + B + \sqrt{(A\text{-}B)^2 + 2\,A\,B.\dfrac{A+B}{a}}}{\dfrac{A+B}{a} - 2}$$

Assuming a square footing with side $A=10$ ft., to be carried on piles 12-in. by 12-in. ($a=1$) the spacing found by formula would be:

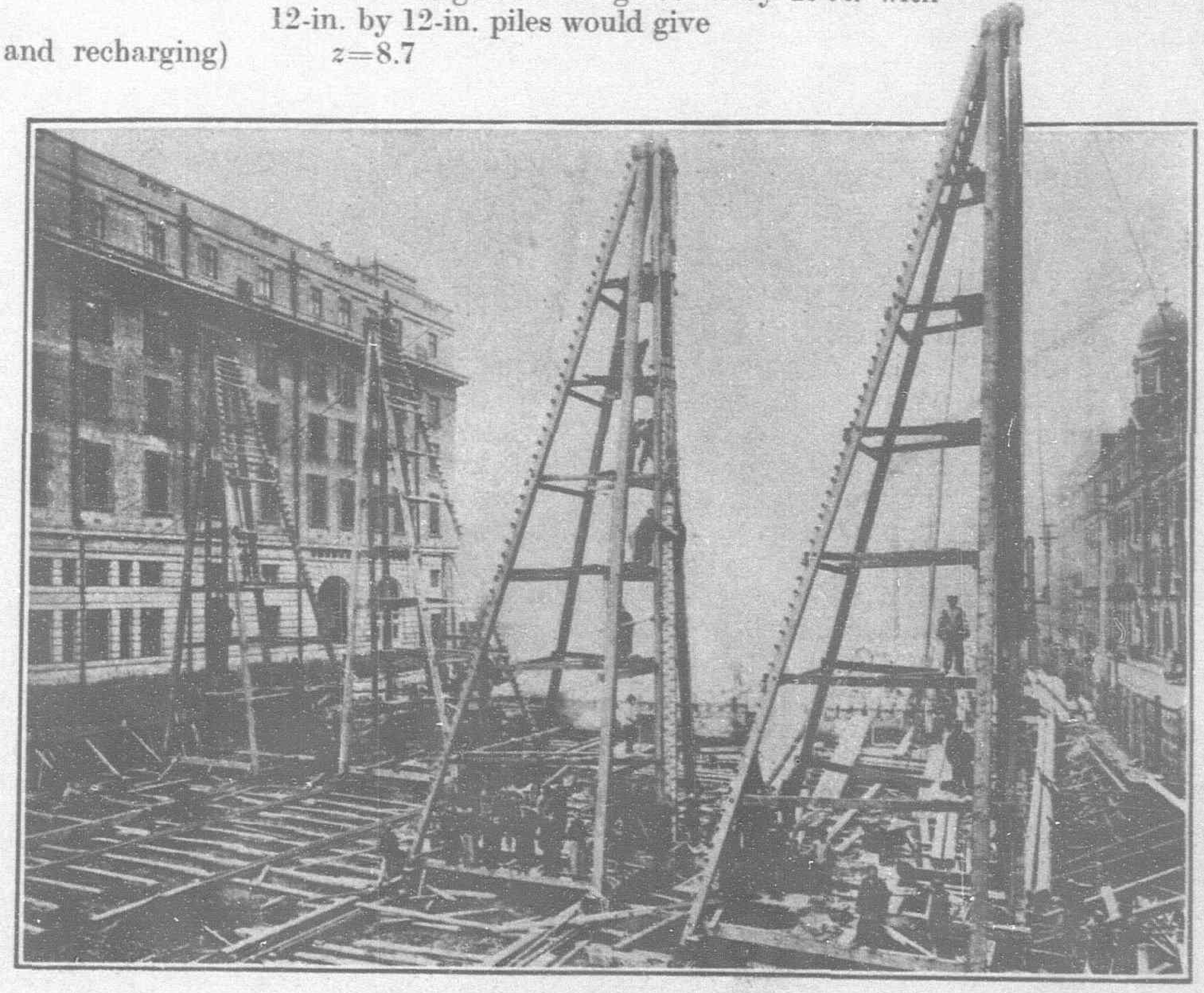
$z=4.6$-ft. (4.5-ft., 3 at each side, 9 piles)

If the footing is 100-ft. by 100-ft. and same size of piles should be used the formula would give

$z=11.1$ (11-ft., 10 at each side, 100 piles)

A rectangular footing 100-ft. by 40-ft. with 12-in. by 12-in. piles would give

$z=8.7$



Piling Work on New Customs House

The above indicates that few and long piles are preferable to many and short ones, even if the latter have an extraordinary high skin friction. By placing the piles nearer than above, no additional safety against settlement is gained and the builder who has carefully tested every single pile and found that they would sink only $\frac{1}{4}$-in. for a load of 400 lb./sq. ft. skin friction on their surface area, will to his astonishment observe that his whole densely piled building settles more than a foot when completed, in spite of the fact that the piles are not nearly loaded up to their " full capacity."

For piles of higher skin friction than mud against mud, if such exist, the distances between centers should of course be much bigger than those calculated above. In spite of the fact that the unit skin friction on short piles is slightly higher than that on long, few and long piles at the above indicated distances from each other are required in Shanghai.

It is, however, not the author's intention to indicate that all piles driven nearer than above-mentioned distances are without any effect at all. If the whole foundation area is piled evenly, not so that a few of the piles will tend to sink separately, none of the piles will have any tendency to shear themselves through the surrounding clay and the foundation will therefore sink evenly. The lump of mud enclosed between the piles will settle as one unit together with the superstructure. The only service additional piles are giving is to transfer the load of the building directly down to a lower stratum near the end of the piling, in other words they are making the lines of thrust vertical.

It must be borne in mind that as soon as the distances between the piles in a foundation are smaller than those calculated by the formula, the results of the tests of a single pile do not any longer have any bearing whatsoever on the behavior of a whole collection of piles and that from the moment these distances are diminished the whole problem is reduced to assumptions and loose guess-work.

Dr. K. Terzaghi (Proceeding Am. Soc. C.E. Nov. 1927) considers the direct application of the bearing value of one pile to that of many just as absurd as to assume that since a bridge has stood the load of a single car without measurable deflection, it will stand the load of 200 cars acting simultaneously. He proves that the knowledge of the " safe load " of the individual pile only represents a minor part of the information required for predicting the behavior of the foundation.

### Combined Pile and Raft Foundations

Another factor of unsafety is introduced when the surface of the soil in addition to piling is given a considerable superimposed load (say from a raft). Such load will reduce the shearing strength of the mud and therefore the bearing value of the piles, it will disturb the equilibrium of the lump of mud kept gathered between the piles by giving it a tendency to displace itself to the sides and, besides, the two different methods of loading the soil require quite different initial settlement before developing their full bearing value. It is therefore in many countries not considered permissible to combine direct loading of the soil with piling.

### Resume

The data given tend to the conclusion that pile foundations should not be used indiscriminately.

In some cases piles are certainly required under a foundation, as for deep draft wharves and for structures to be erected on new fill or similar places where the upper layers have practically no bearing capacity, but in all other cases it must be borne in mind that it is doubtful whether lower strata have an appreciably higher bearing capacity than the upper ones and that uneven close piling is only waste of money.

Long piles with a wide spacing are preferable to short piles near together. Wooden piling has the advantage of buoyancy over any type of concrete piling. Vertical thrusts will be formed whatever kind of piles may be used, but for example a wooden piling 80-ft. long under an eleven storied office building will have a buoyancy of 210 lbs. per sq. ft. whereas the corresponding excess weight of a 35-ft. long Franki piling over the weight of the soil for the same building will be more than 250 pounds per sq. ft. The selection of a wooden piling instead of a concrete piling will thus relieve the foundation as a whole of a weight corresponding to that of two stories.

As the piles serve to transfer the load down to strata with unknown bearing capacity, it will be wise to treat them as a raft and see that the center of gravity of the load coincides with the center of gravity of the plane figure of the foundation. A single excessive load should be carried on a separate foundation.

If an intimate knowledge were to hand of the bearing capacity at different depths and this could be shown to increase with depth, such an excessive load could be taken by specially long piles. By varying the length and the spacing of the piles the center of gravity of the strength of the pile-resistance could be made so as to correspond to the loading. Such knowledge however does not exist and could not be obtained by testing single piles or even large clusters of piles. It is therefore advisable to let all piles under a foundation have the same length and as far as possible the same spacing.

The ideal pile for Shanghai is a long slender conical pile. If piles are very closely driven, the ideal pile material is wood. The best means by which to drive is a double acting steam hammer because of the peculiarity of the local soil.

I am indebted to Dr. H. Chatley for several suggestions in connection with the preparation and details of this paper and have also to acknowledge the permission of the Engineer-in-Chief of the Whangpoo Conservancy Board to utilize the Board's records.

## Commercial Aviation in China

*(Continued from page 221.)*

from looting the depôt at Peking. One would readily imagine how effective aeroplanes could be employed for both defensive and offensive moves, but surprising to the outsiders that only a few planes were used, and they were only using them for observation purposes. The aviators actually went on a strike, not for increase in pay, better hours, nor for better conditions, but because they would not fight against their old schoolmates, whom they had tried, during their period of training, to understand. This action shows what personal understanding and closer contact could do to promote peace. Immediately after this war I was sent to South China to inspect aeronautical developments. Surprising as it may be, I found nothing but American machines there and these were in activity all the time. After stopping over a few weeks I traveled to the extreme Southwest of China, to the province of Yunnan, and bought for the government their eleven French planes. These planes were used, I understand, solely for training in the military academy. Most of you remember some years ago the Italian fliers flew from Rome to Tokio. Well, on their journey, machines were placed at various points on the route to be used as spares in case of an emergency. After the completion of this flight I bought one of these planes and sold it to the Yunnan Government. If you would take a map in hand and study it a bit you will agree with me that aviation could do a great deal toward developing countries that have high mountain barriers. Reams of railways to connect all the large cities may look attractive and simple, but not economically feasible.

This very barrier of developing comprehensive railway systems creates the most ideal opportunity for aviation. Aeroplane transportation is the only logical solution.

It is through the air that China will eventually be united and develop her great natural resources, almost untouched except along the coastal provinces. The vast and rich cities which are centers of productive districts and which are now shut off by long days of tedious land and water travel, would be only a matter of hours were commerical air lines established.

You need not necessarily picture a country criss-crossed with air lines and carrying all traffic. Though that is not an impossibility for the future, we all realize the aeroplane will never entirely supplant the rail or water transportation, but it could be applied where it is most useful. Men will not settle in any great numbers in places where it takes days and weeks to reach, and colonization never precedes transportation. One would readily see what outside influences sweep the different parts of China. North China shows British influence, and is South China, where the city of Canton and other Government administrations are run practically by young Chinese who acquire their education in America, naturally American ideas predominate ; the extreme southwest by the French, and North Manchuria by the Japanese. Affairs in China are not as chaotic as the world thinks. Naturally, as after any overturn of government, there are many remnants of revolutionary factions which would create disturbances here and there.

People living in America to-day are enjoying life, freedom and liberty, the results of a hundred odd years of formation.

China is only in its fifteenth year of a republic. It is in fact not a Republican government at all. The form of government is still in process of moulding, and let's give it a chance.

Weaving Room, Hon Sung Cotton Mill

# The Cotton Mills of Shanghai

## Nucleus of China's Greatest Industry and Home of $249,120,000 in Capital

*By H. F. Wilkins*

THE combined efforts of three nationalities in Shanghai are engaged in the business of spinning cotton into yarn and weaving it into cloth, an industry which supports more people than any other of the city's varied trades and which involves an enormous amount of capital, nearly $250,000,000. Working day and night in the cotton mills of Shanghai are 119,547 laborers, clerks, coolies and bosses.

In the last month of 1927 alone, Shanghai mills produced for export 850,932 piculs* of cotton yarn and piece goods.

Such information as has appeared in the public prints regarding the cotton industry in the Orient has been largely concerned with being indignant about alleged low wages in cotton mills in Shanghai and elsewhere, and the general impression is that the cotton industry is a monster thriving at the expense of the poor working classes. Conditions may be bad in places, but so are they in every branch of Chinese labor, and a factory job in a Shanghai cotton mill is infinitely superior to starving to death in a Shantung famine. Actually cotton spinning in China is no more profitable than it is in most other countries, and those who run the cotton mills would be glad to raise the standard of living if they could, partly in the interests of increased production. But that is the task of a nation, not of an industry.

At Work in the Mill

### Shanghai as a Cotton Center

Cotton spinning and weaving is the

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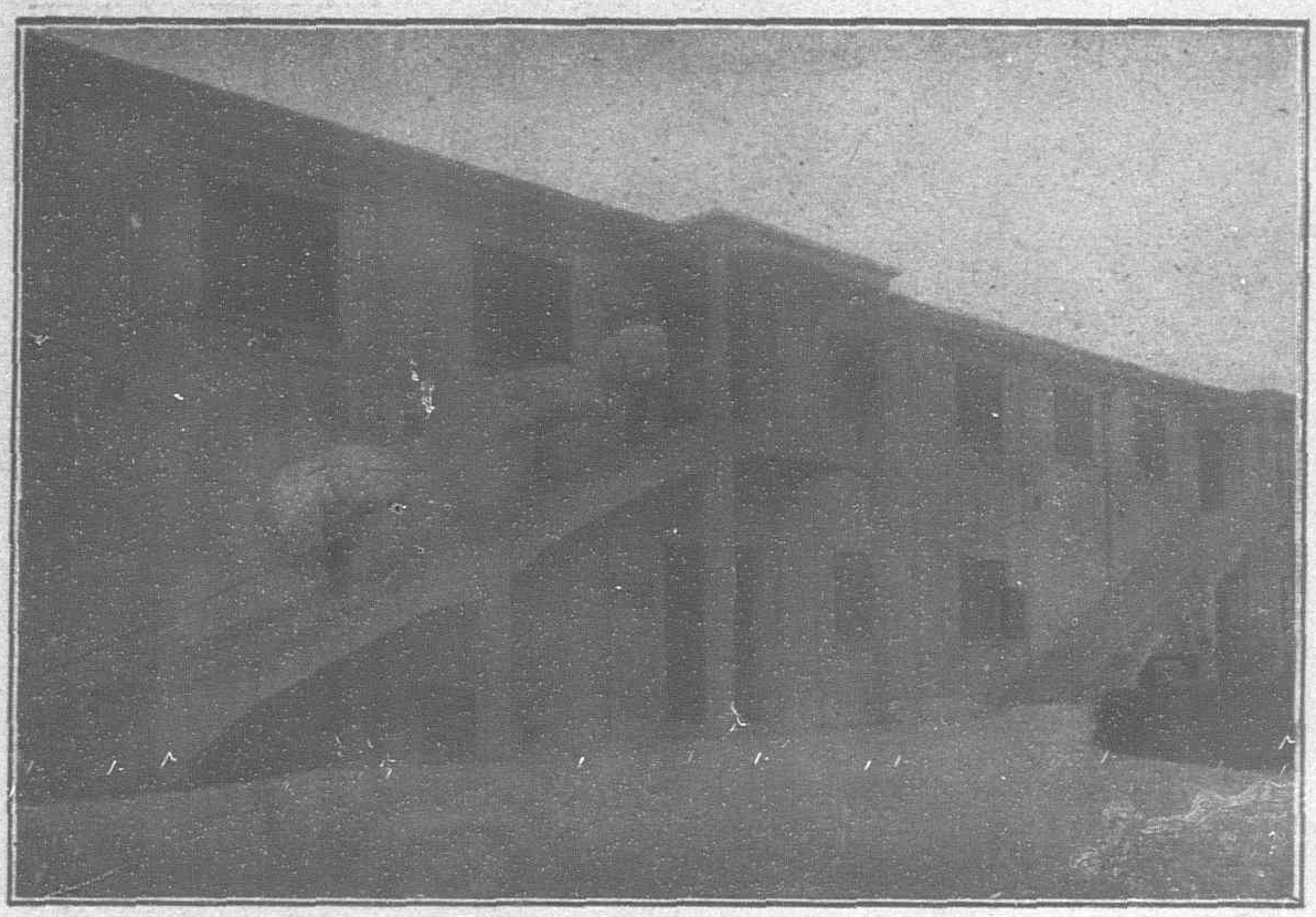
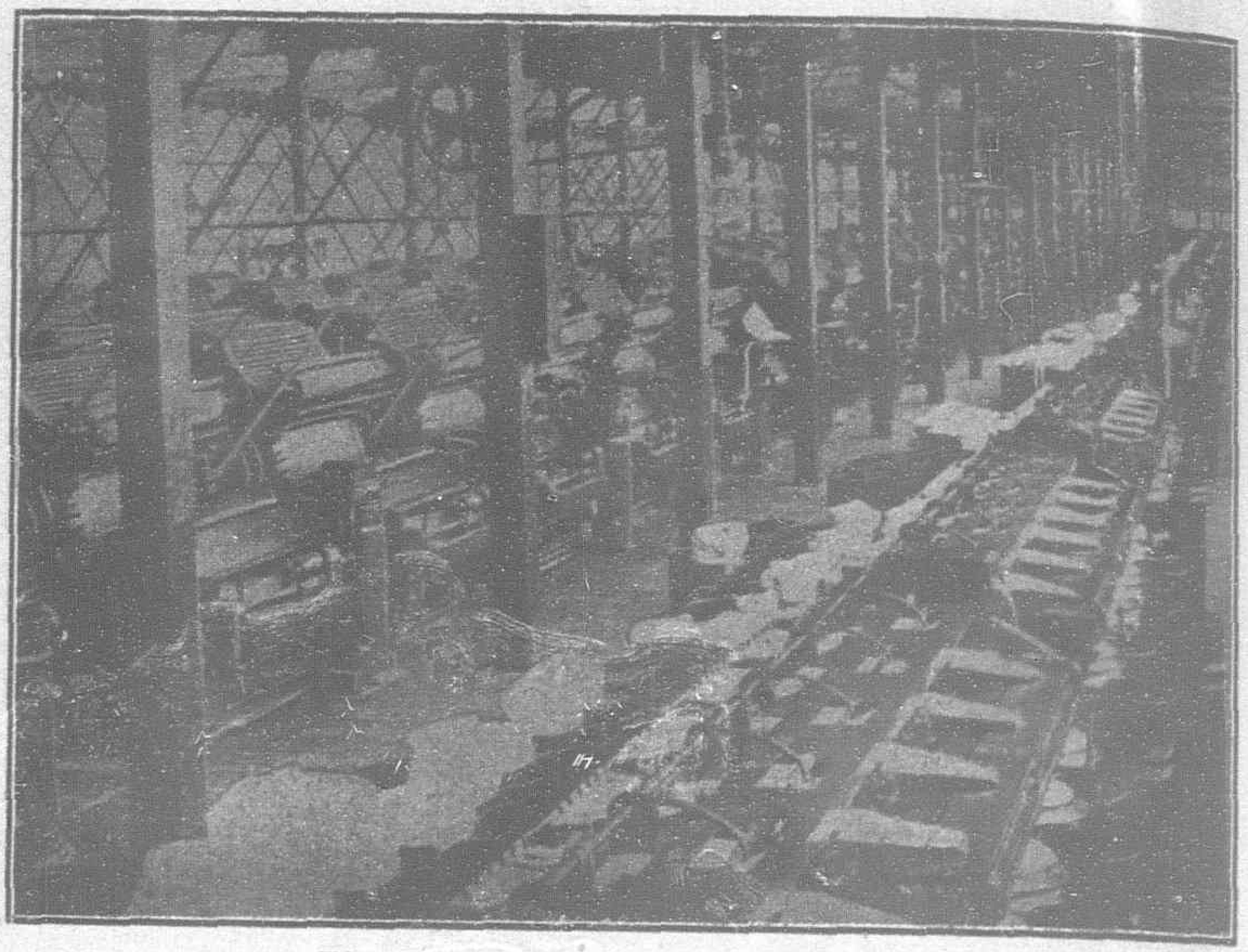
*A picul-133⅓ lbs.

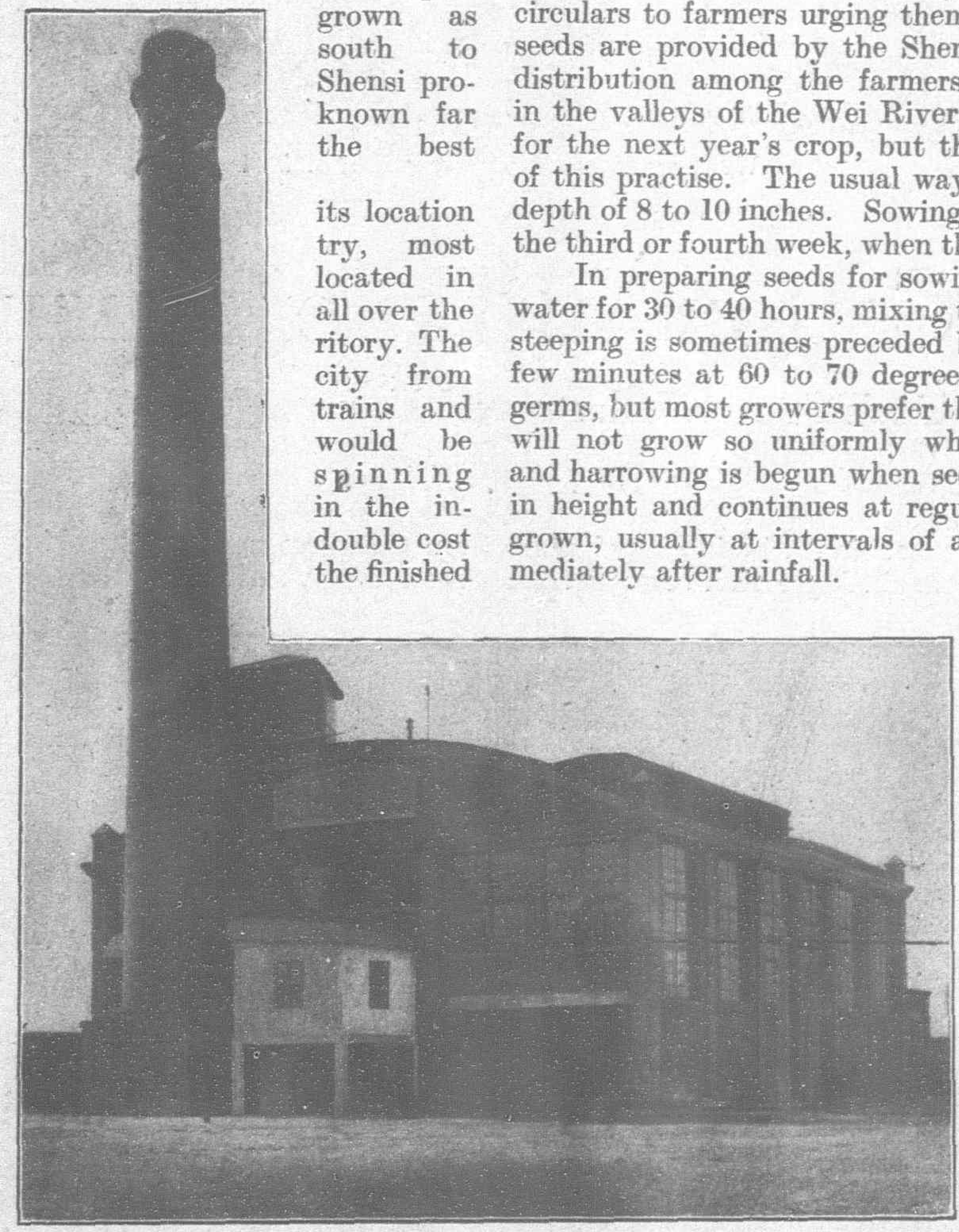

The Warehouse, Hon Sung Cotton Mill


The Nagai Wata Kaigha Mill No. 3

biggest industry in Shanghai, and cotton production about the most important in all China. Almost as many Chinese farmers are engaged in growing clothes for the masses as are occupied with raising stuff to feed them. Owing to soil and climatic conditions, almost every province in China can profitably raise cotton. It is grown as far north as Manchuria and south to the borders of Indo-China. Shensi province, far to the westward, is known far and wide as the home of one of the best grades of cotton in China.

In natural consequence of its location as the biggest port of the country, most of China's cotton mills are located in Shanghai. They are scattered all over the city and far out into Chinese territory. The raw material is brought to the city from the interior in junks, on freight trains and by coastwise steamers. It would be useless to have a large cotton spinning and weaving center anywhere in the interior of China because of the double cost of transporting the raw and the finished product to market. So the cotton industry is centered in China perhaps more than in any other nation, and the center is Shanghai.

Cotton was known to Chinese historians as early as the sixth century A.D., but the plant had never been cultivated in this country until the twelfth century. Previous to that time cotton came to China from what is now Chinese Turkestan, and from India. From Chinese Turkestan its cultivation gradually spread to China by way of Kansu and Shensi.


Turbine Room, Heng Yuen Textile Co.

## Cultivation in Shensi

Previous to the introduction of American cotton to China, which dates back to the closeof the last century, two varieties of indigenous cotton were extensively raised on Shensi farms. One was of white color, known locally as the cocoon variety, the other of a brownish shade called camel wool. The good features of the white cotton lie in its tensile strength and its susceptibility to dies, but its staple is coarse and short compared with American cotton. At that, Shensi cotton fetches a higher price than the products of other provinces.

The way Shensi farmers grow cotton leaves much to be desired. Cotton of different varieties is often grown in the same field, with the result a degeneration of the best. The farmers select seeds by putting them in water and removing the empty seed vessels floating on the surface. Recently, Shensi officials have issued printed circulars to farmers urging them to improve their ways, and good seeds are provided by the Shensi Cotton Experiment Station for distribution among the farmers. With the exception of farmers in the valleys of the Wei River, nobody plows his fields in winter for the next year's crop, but the exception has proved the value of this practise. The usual way is to plow in the springtime to a depth of 8 to 10 inches. Sowing takes place in April, usually about the third or fourth week, when the warm and rainy season sets in.

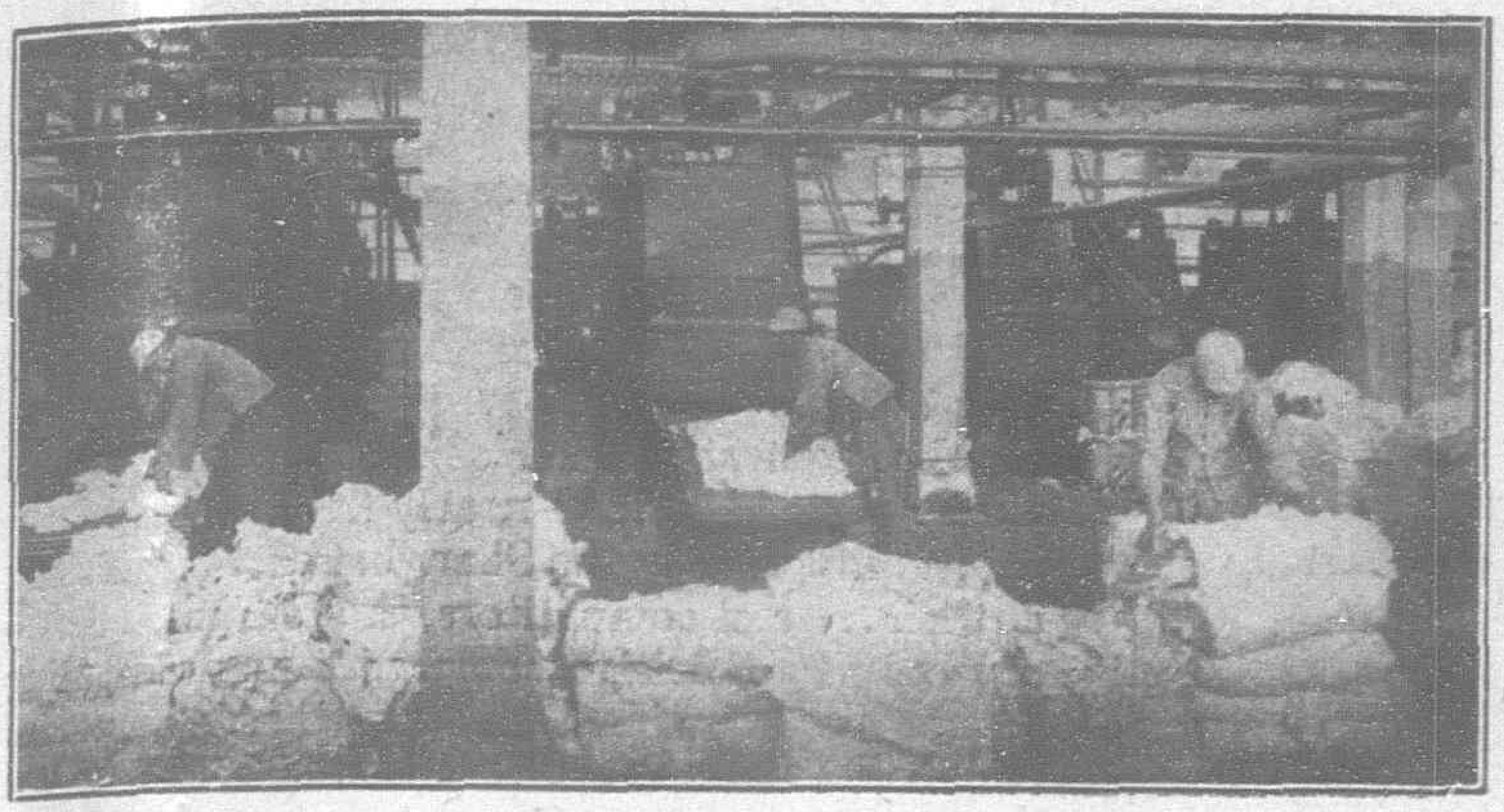
In preparing seeds for sowing the farmers first steep them in water for 30 to 40 hours, mixing them with wood or straw ash. The steeping is sometimes preceded by immersion in warm water for a few minutes at 60 to 70 degrees centigrade to kill cotton disease germs, but most growers prefer the former method because seedlings will not grow so uniformly when immersed this way. Weeding and harrowing is begun when seedlings have attained a few inches in height and continues at regular intervals until plants are full grown, usually at intervals of about 20 days and if possible immediately after rainfall.

## Gathering the Product

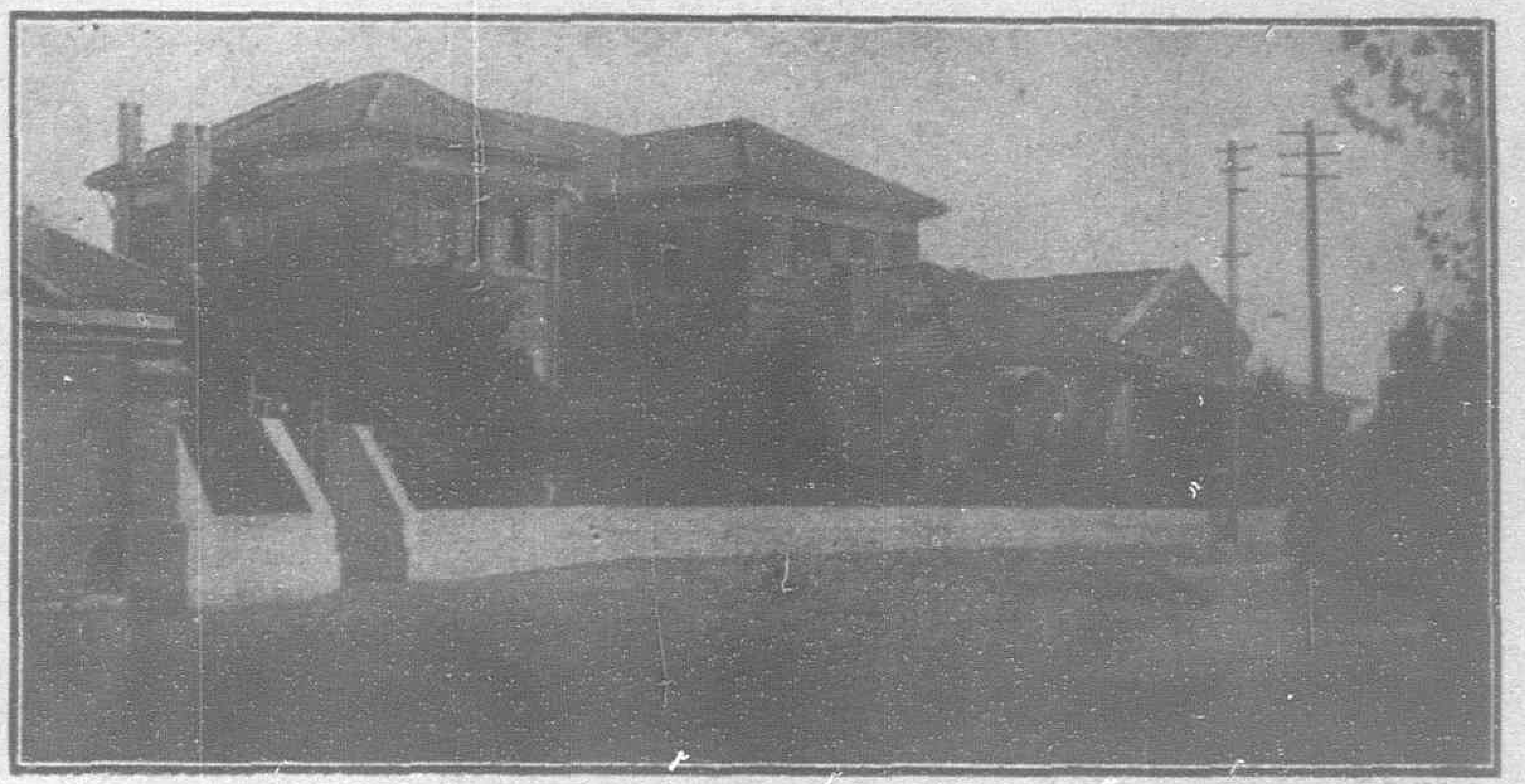
When the plant grows two or three feet high its trunk is polled to prevent it from shooting too high and to promote growth in the lateral roots. Fertilizer is applied three or four times during growth, and is added to the soil, in the form of animal droopings, before sowing. About two piculs of night soil, manure or sometimes bean cake, is applied to each *mow* for every crop.

The cotton pods are gathered in late September or early October by women and children. Pods gathered in the daytime yield better wool, but owing to pressure of work Shensi farmers have to pick part of the crop before daybreak, or early in the morning when the pods are still wet with dew.

Rotation of crops is generally practised by Shensi growers. Cotton is grown in a field for three or four years in succession, followed by other crops for an equal period of time. The first rotation crop following cotton is wheat or barley, and in the third or fourth year maize takes their place. The frequent change not only makes the soil more fertile but also checks the multiplication of insects



Mixing Department

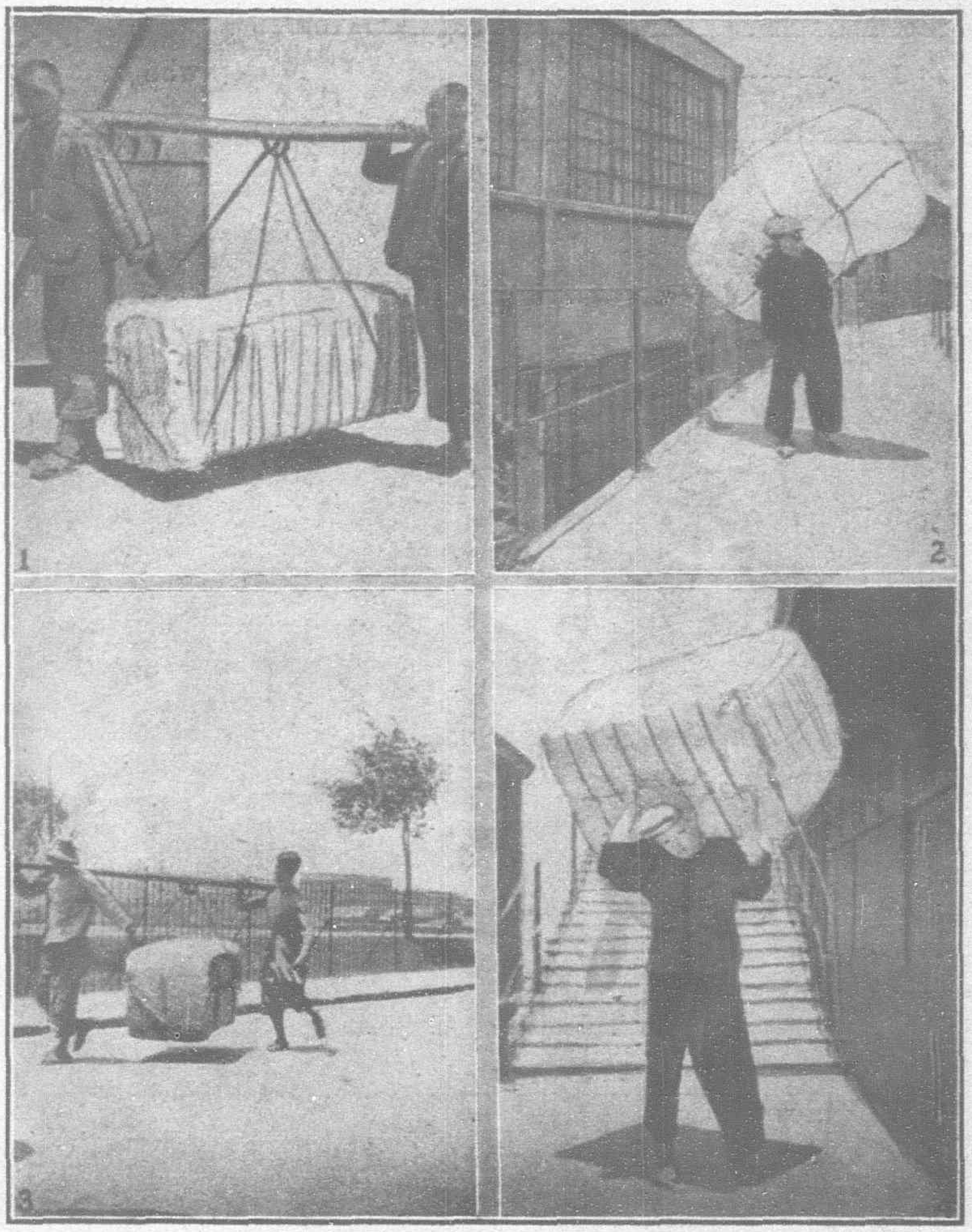


Hospital in the Kanegafuchi Mill

and disease germs, of which there are several varieties, the so-called Ya Chung being one of the worst. This is a worm that lives under the leaves and sucks the juice of the plant.

## Transportation to Market

After picking the cotton, growers take it usually to a sort of collecting center for transportation to the mills. In the cotton producing zone of Shensi province there are several of these cotton collecting centers. Sian and Hwayin are the most notable. At each of these centers are cotton dealers who make a business of collecting the raw material for export, by means of mule carts, to Shanchow, the western rail head of the Lung-Hai line on the Honan-Shensi border. From here the shipments are carried by rail to Chengchow, in Honan province, whence a part of the consignment goes north to Tientsin and the remainder to Hankow and Shanghai, most of it to Shanghai. There was not a single cotton mill in the whole province before 1920, and since then only a few native mills to prepare cotton for purely local consumption have sprung up. There is no likelihood of further growth of the cotton mill industry locally, for there is not enough profit in the venture. Unsettled conditions in the province and the lack of any available expert technical advice to speak of are regarded as the chief factors in holding back the cotton raising industry in Shensi province, where it has gained as high a place in the lives of its citizens as in any other interior province of China.



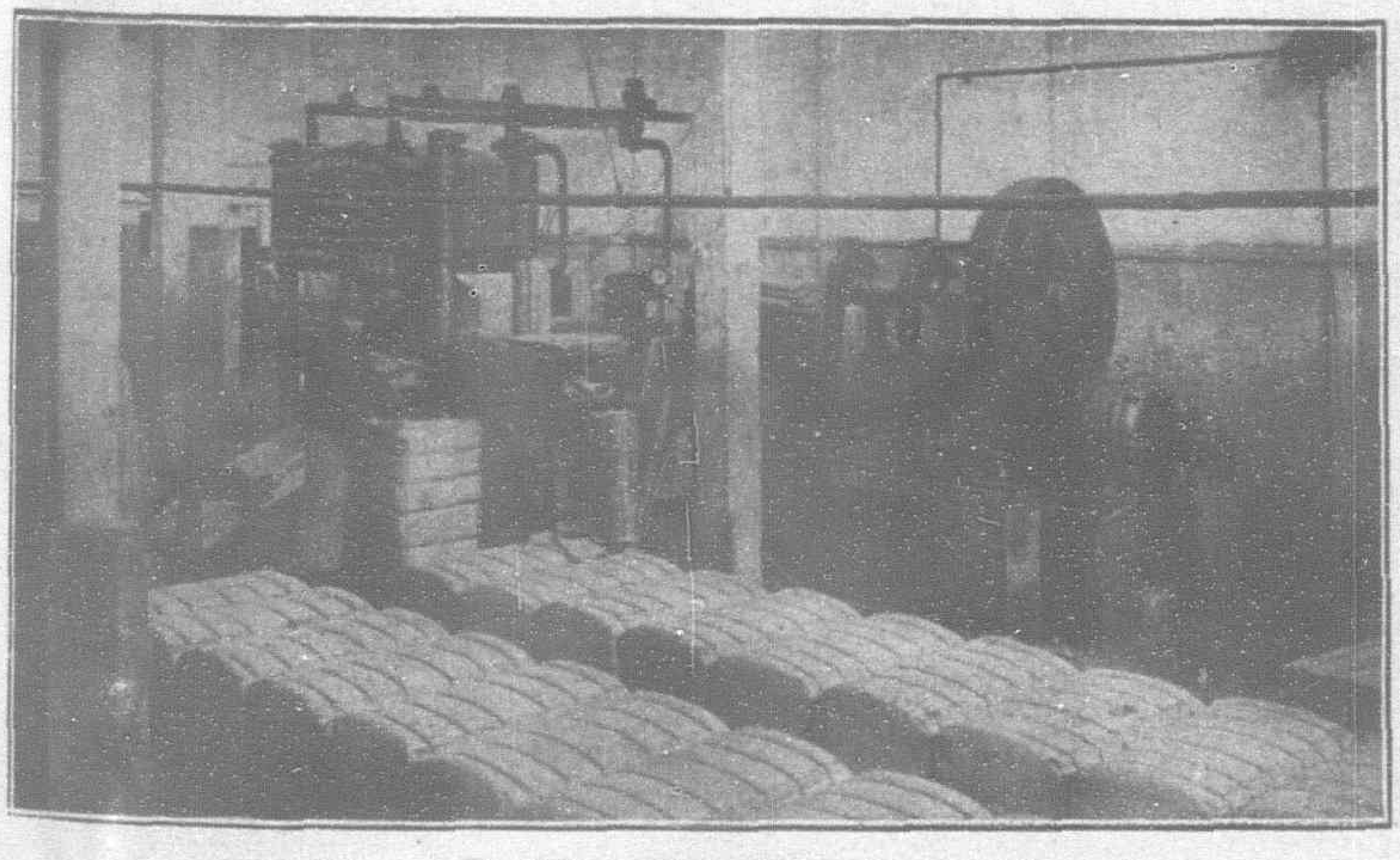
Methods of Carrying Cotton and Yarn in China

Figs. 1 and 2 Show Respectively Compressed and Loose Baled cotton being carried into the godowns. Fig. 3 and 4 Show two Methods of carrying Yarn from the Mill. The Bale in Fig. 4 Weighs 400-lbs.

## Other Producing Centers

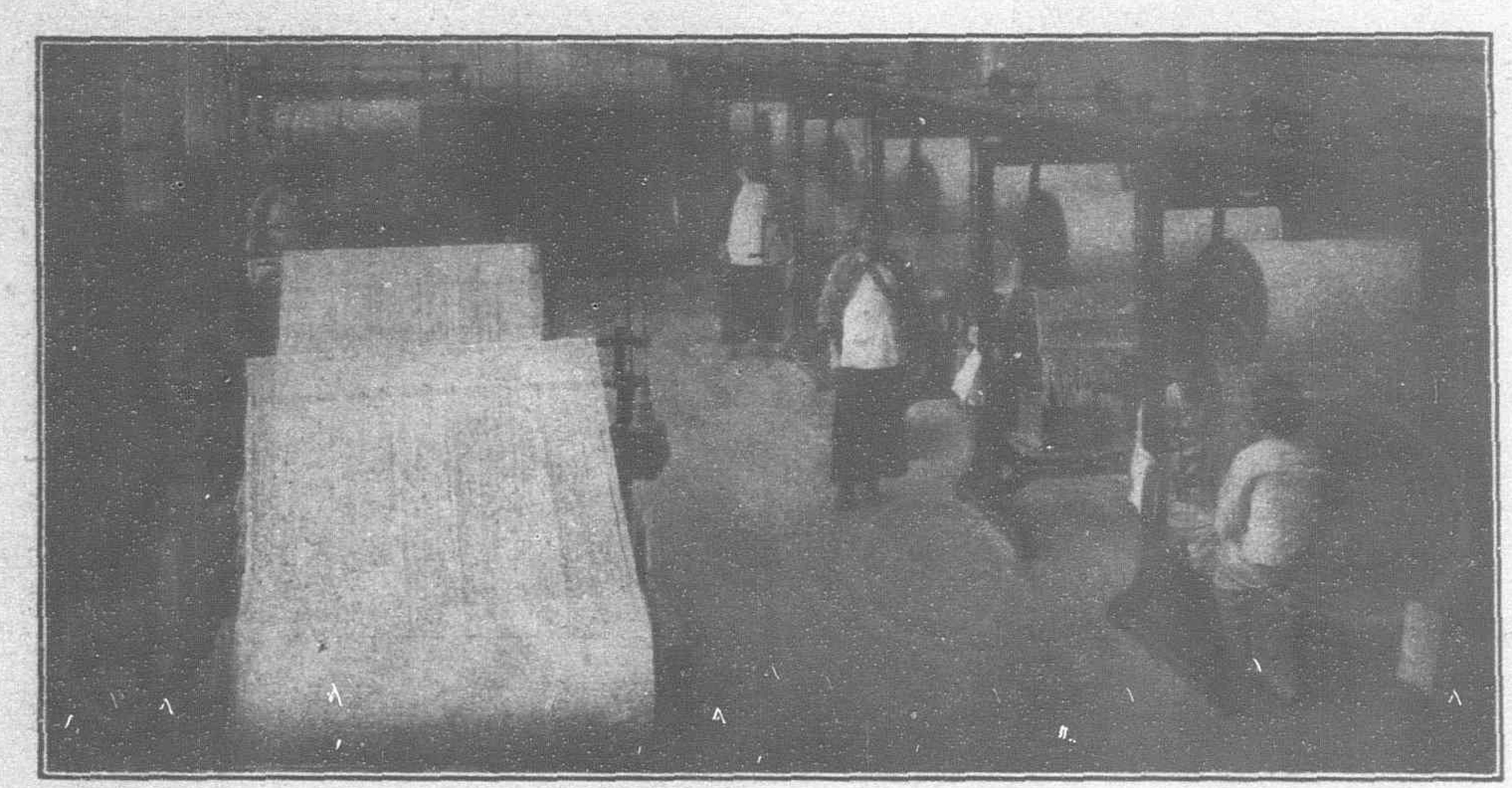
This detailed account of the methods and practise of Shensi cotton growers gives a typical picture of the way cotton is raised in the interior of China. Probably most of the cotton raised in China comes from Hupeh province, where their methods of cultivation and picking are approximately the same. Minor practices vary in different localities, but in general they are the same.

In Kiangsu province, the second largest cotton producing district of China, one of the best grades known to the Shanghai market comes from Taitsang. The normal yearly output of the Taitsang district is in the neighborhood of 100,000 piculs, although the output sometimes reaches 150,000 piculs in an exceptionally good year. The



Packing Department

Carding Department

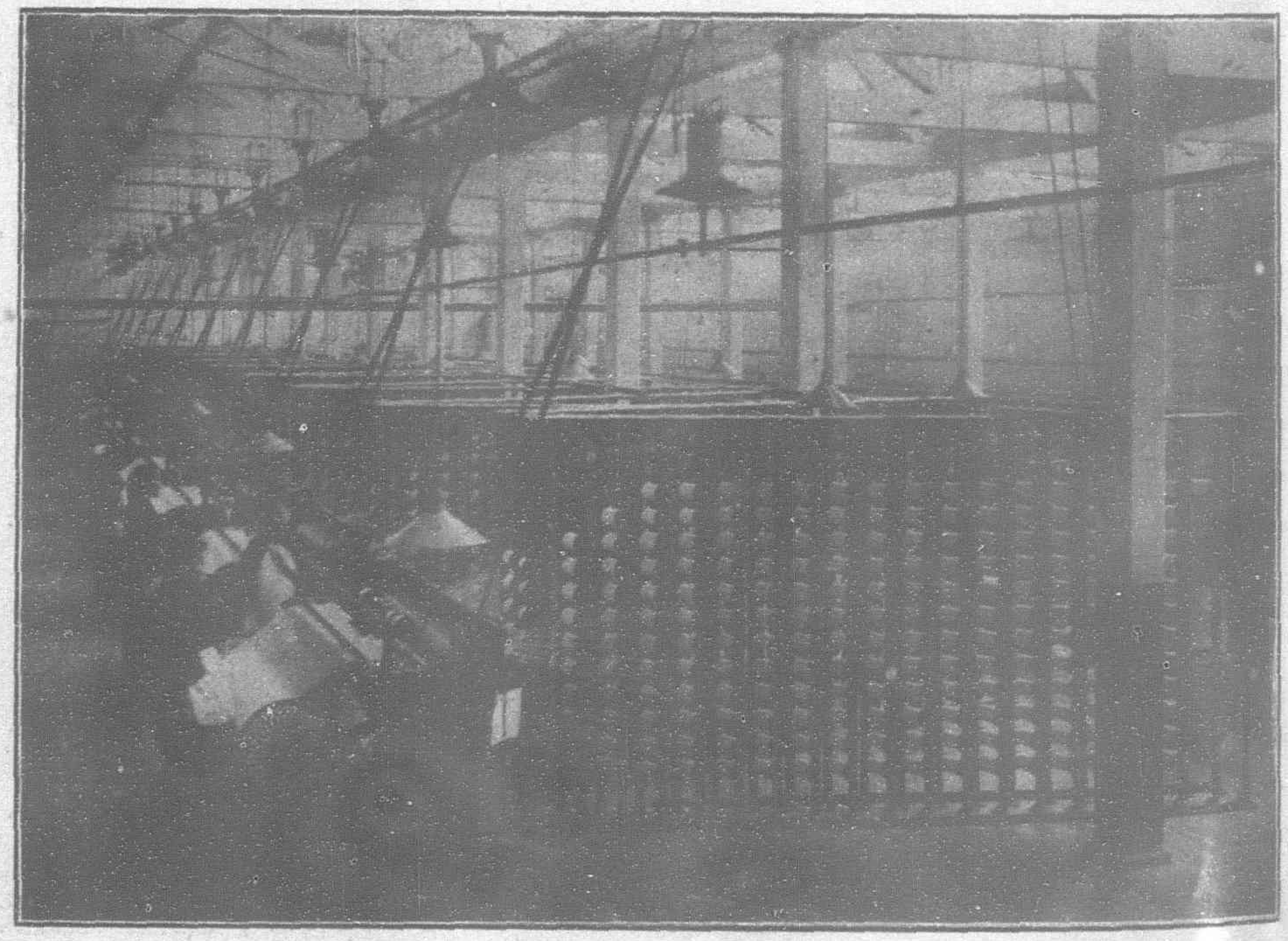


Warping Department

Cloth Finishing Department

bulk of the farmers are peasant tenants who own part-right to the land they work. The rent on land devoted to cotton is always assessed in terms of dollars in this region, and in 1926 this amounted to $2.40, $2.45 and $2.50 a *mow*, according to the fertility of the land. Raw cotton grown on Taitsang farms is of two varieties, black seed and wool, so-called. American cotton has been tried but soil and climatic conditions are unfavorable.

Taitsang cotton is distributed either through local exporters or bought direct by agents representing mills in Shanghai or other cities. The cargo is always carried by junk, most of it to Shanghai. The farmers sometimes sell raw cotton to local dealers, who in turn sell it to the exporters or local agents. All the cotton thus disposed of is unginned, for there are no ginning factories nearby. There are altogether 42 cotton dealers in Taitsang in addition to six established agencies representing Shanghai and Wusih mills. The transportation and distribution of raw cotton in this locality is worked out to about as efficient a scale as anywhere in China. Local pawnshops often come in on the market with a loan to somebody on his cotton crop, providing godown facilities for storage. A picul of unginned raw cotton may be pledged to the local pawnshops for $5 or $6, the interest rate being fixed at two per cent. per mensem, payable monthly.



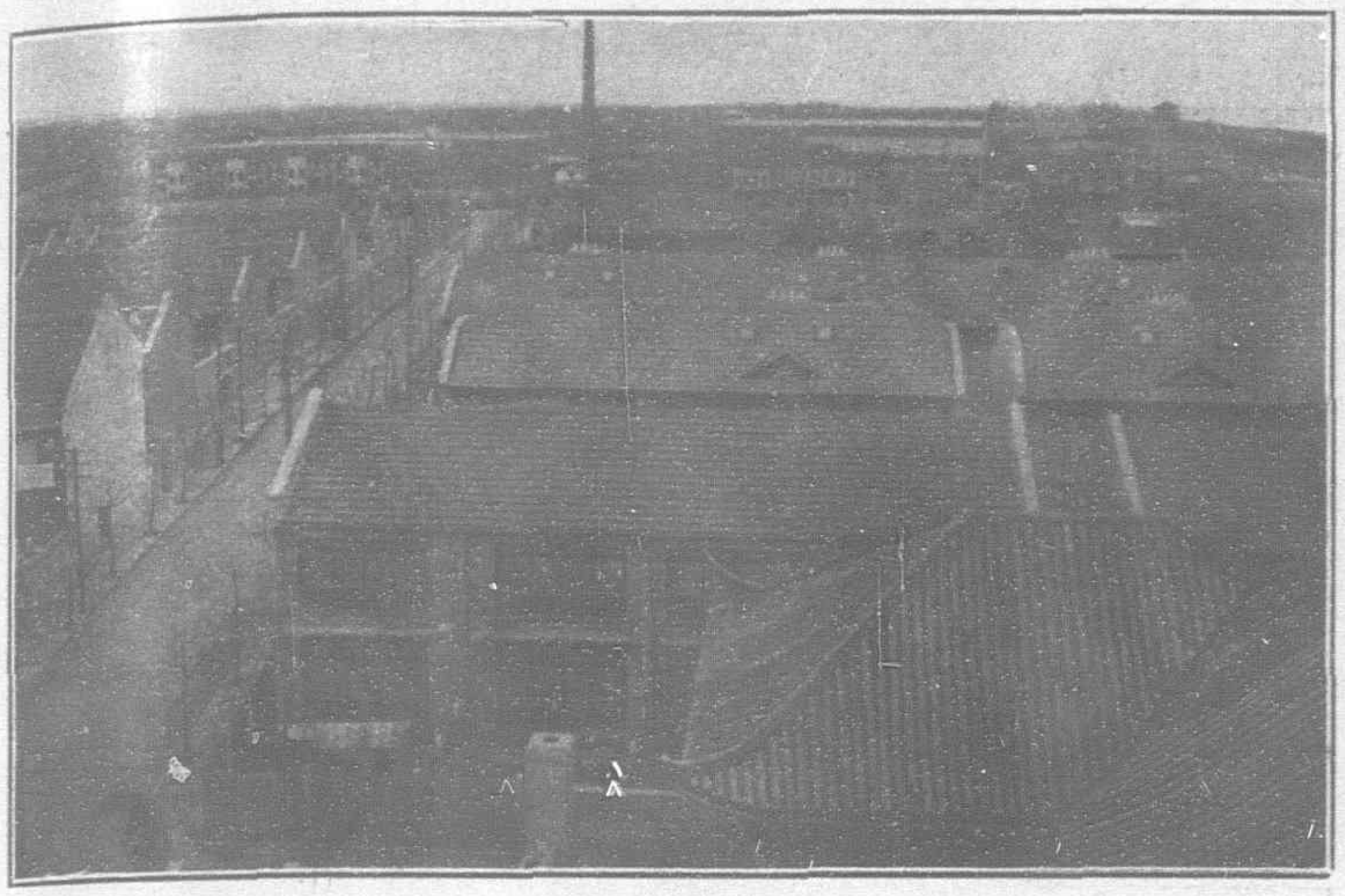
Drawing in Department

## Cotton Mill Operation

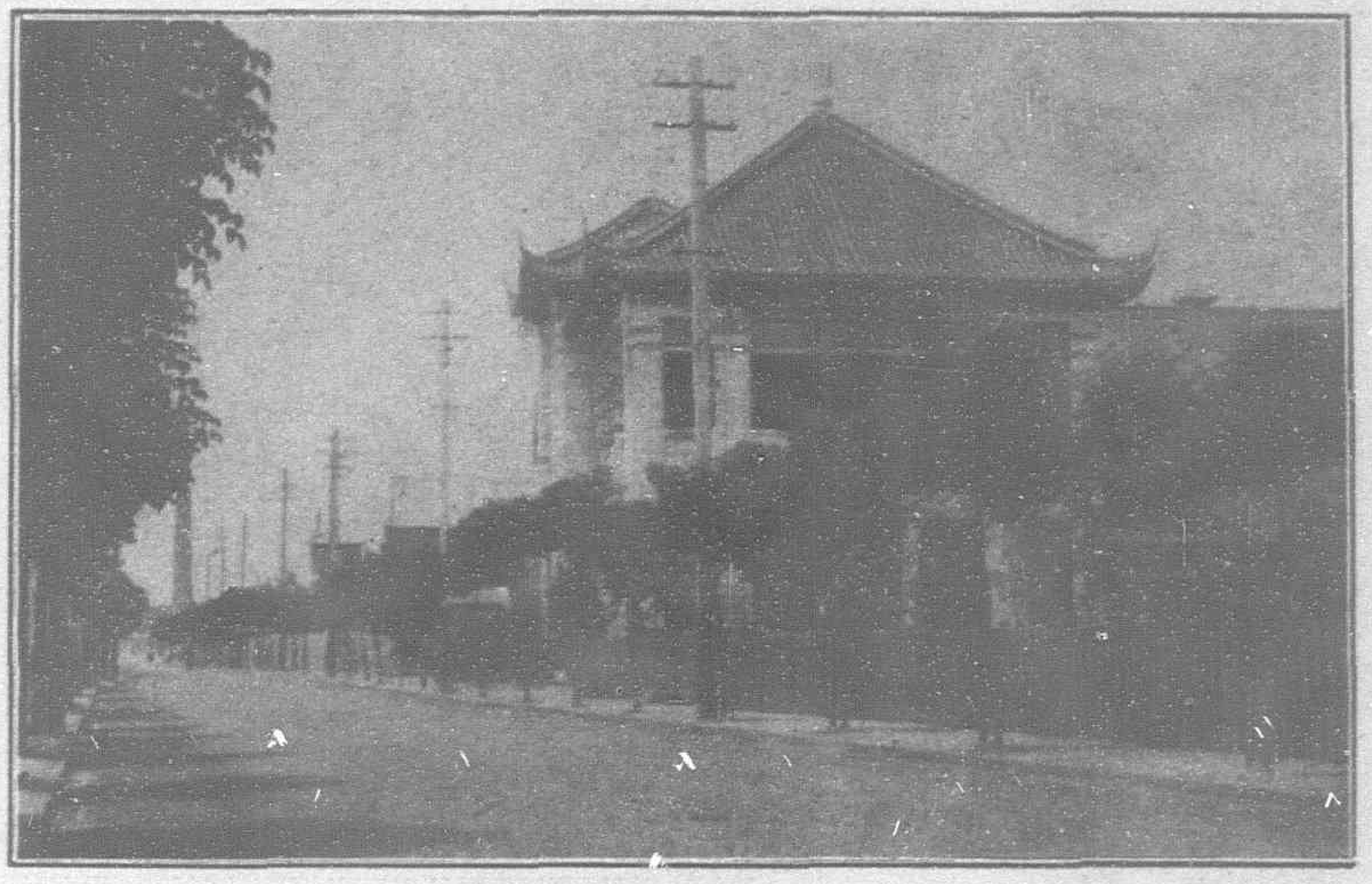
Running a cotton mill in China has so many distinctive differences in practise from the same industry in other countries that it really has comparatively little in common with accepted ways and means. The means of hiring labor is different, the work itself is different, and it is done in a different environment. The language problem is a formidable one, encountered in China to an aggravating degree. All machinery is of foreign manufacture, and this of course works the same in China as it would anywhere else.

Three nationalities are operating cotton mills in the city of Shanghai, Chinese, Japanese and British. Of these the Japanese have by far the greatest number of mills, they hire more workers and they have nearly five times as much capital invested in the Shanghai cotton industry as their nearest competitors, the Chinese. There are only two British companies manufacturing cotton goods in Shanghai, but these companies are large ones.

No discussion of working conditions in Shanghai cotton mills can get around the fact that wages are low and the working hours long and hard. The figures are startling to anybody who does not know his China. A male worker of the lower class works 12 hours a day and gets somewhere between 40 and 50 cents Mex. for it. The women work the same hours and get 24 to 30 cents. But there is the economic side of it to be considered. The individual efficiency of Chinese workers is so low that the mills have to hire an extraordinarily large number of them to get the work done, in addition to a separate department for their supervision. Besides that the wages are not actually as low as the figures above indicate. In conforming with accepted Chinese custom, mill owners have to put on various bonuses and gratuities. A Chinese worker demands to be fooled



Mill Buildings



Boulevard in Mill Grounds

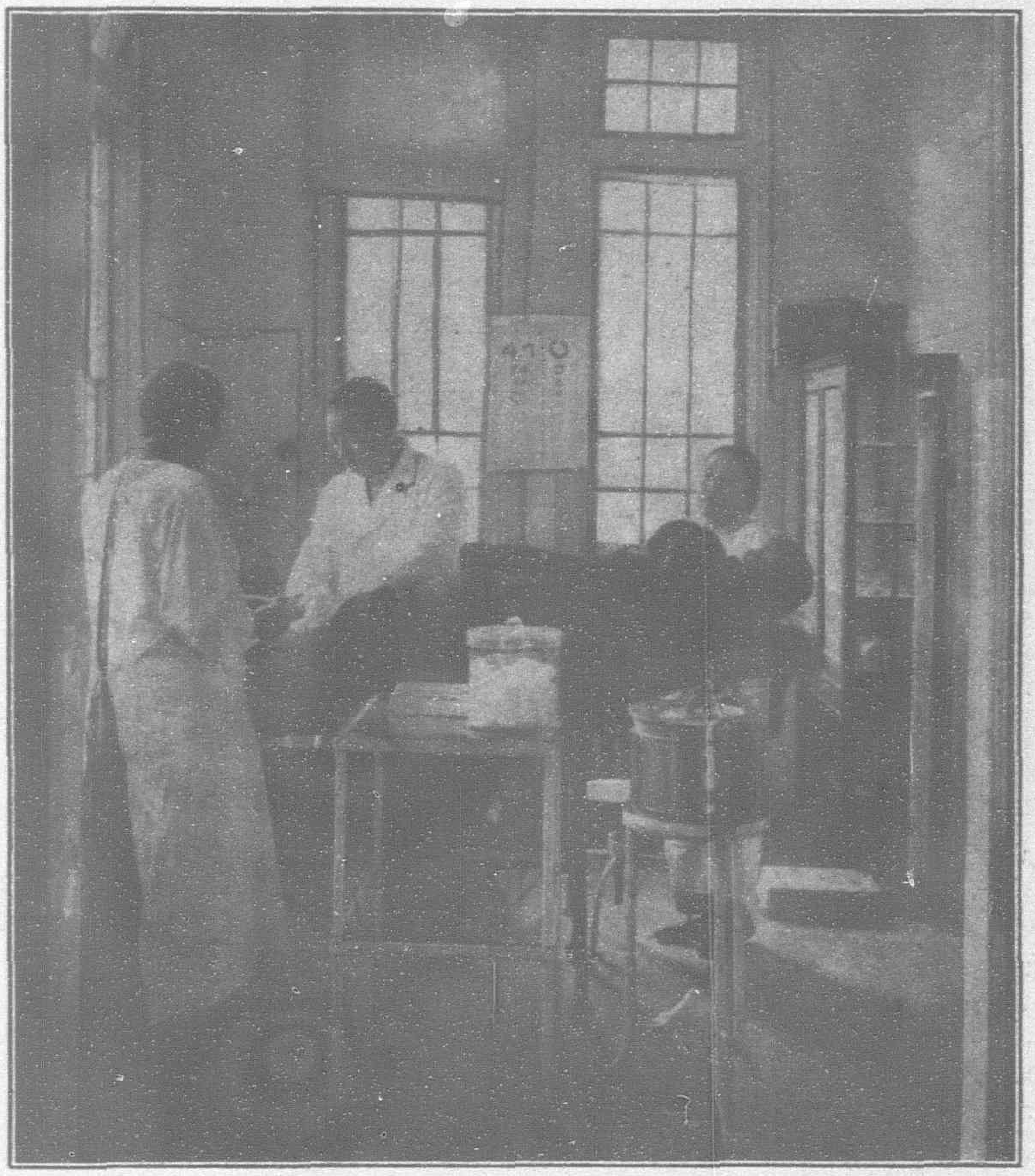
Kanegafuchi Cotton Spinning Co.

into thinking he is getting something for nothing.

## Mills and Machinery

Establishing a cotton mill in China brings its own problems. It is customary to leave all details of erecting buildings to the architect who works along with the building contractors. The Chinese have become very efficient in putting up modern buildings, as the substantial structures of ferro-concrete show. Most of the modern mills are two stories high, but the Japanese seem to prefer buildings of one story, made of brick. There is some actual advantage in this, as time has proved that the concrete structures tend to hold heat and dampness more than brick buildings do.

Once the buildings are up, installation of engines, boilers, spinning machinery and millwrighting is left to machinists who specialize in this type of engineering. The usual custom is to bring out fitters from England or America to oversee the work. There are many capable Chinese fitters, but it is a usual stipulation of the contract that sellers of machinery are responsible for the proper running of the plant.

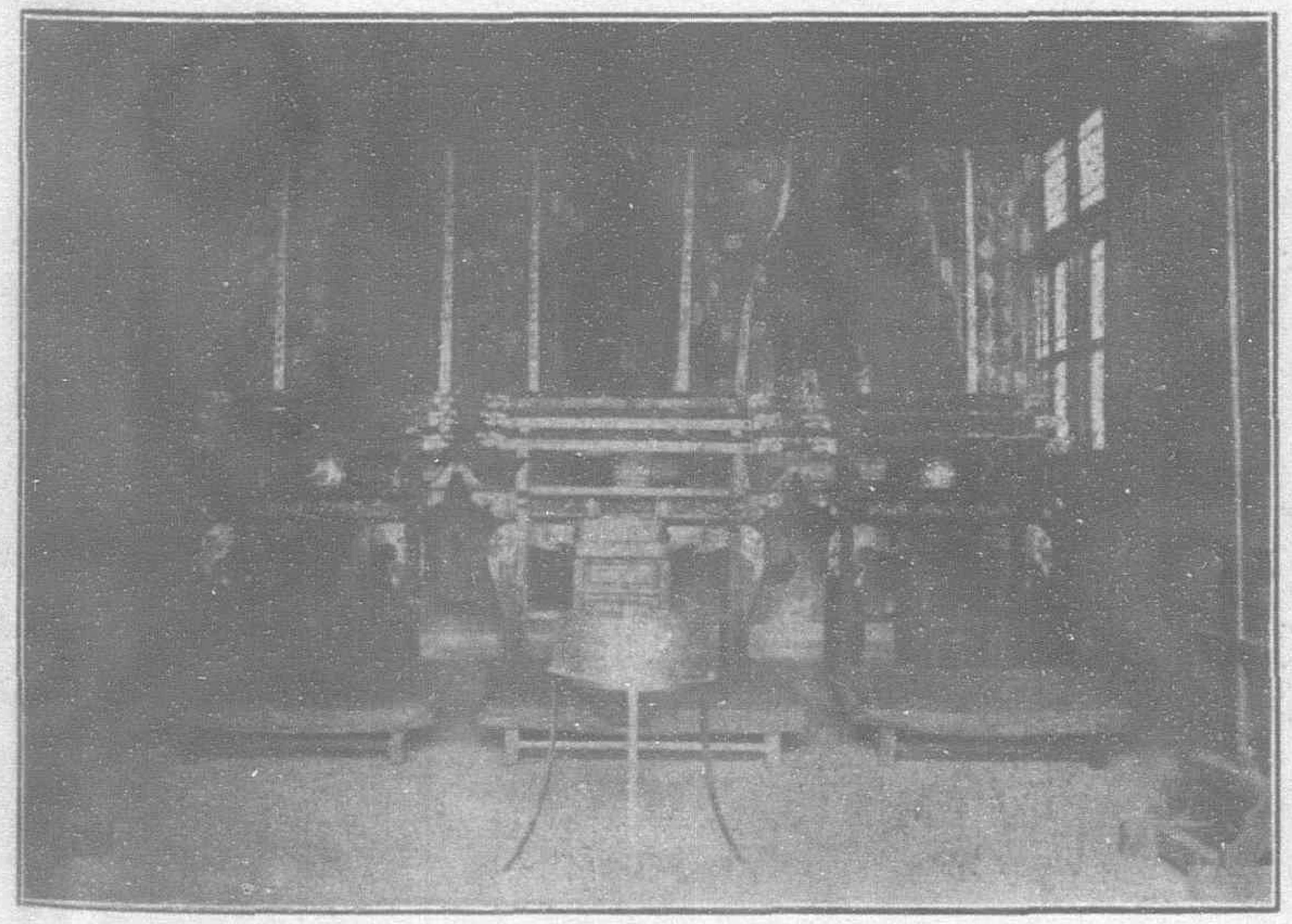


Surgical Operation Room in the Mill

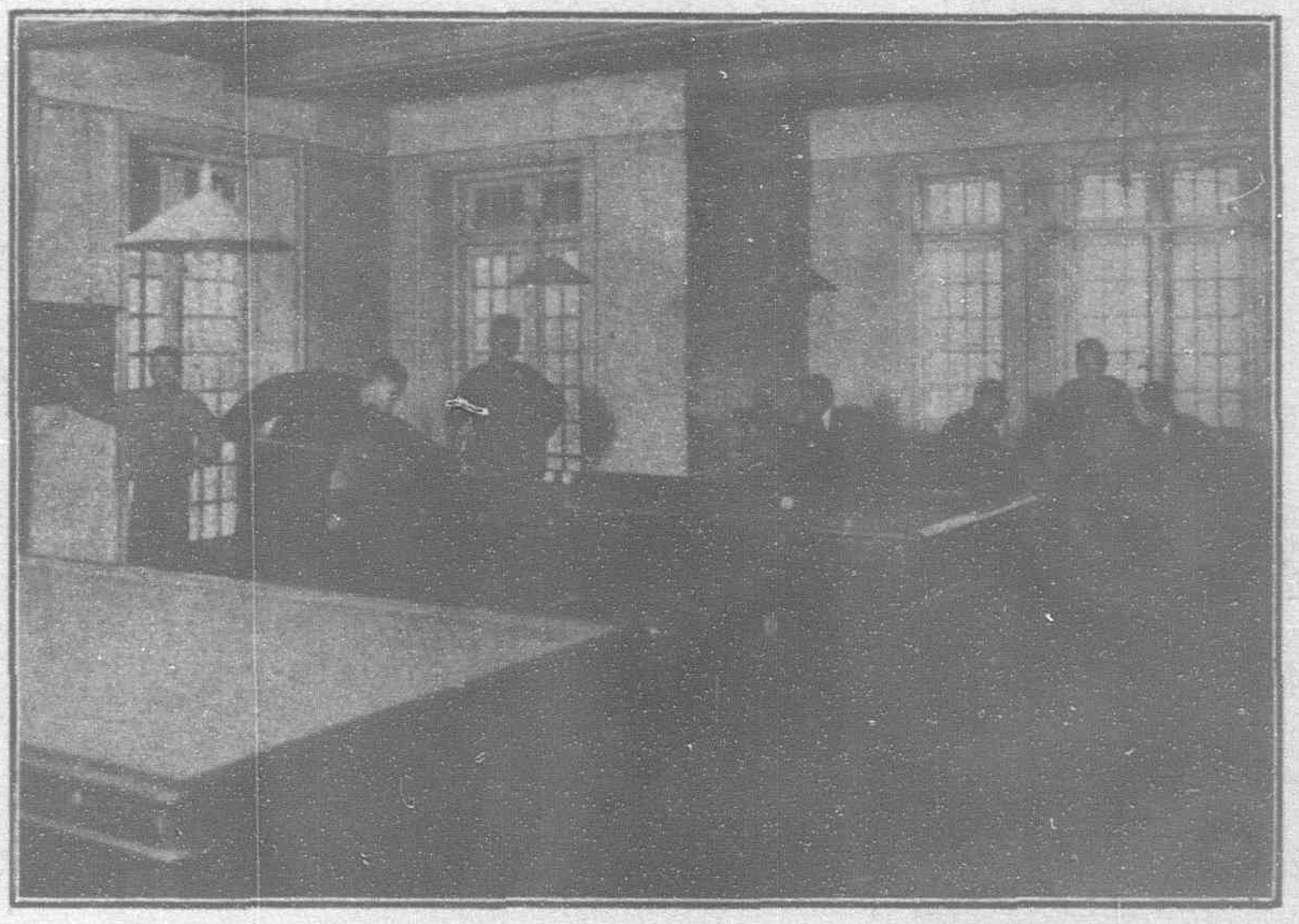
Most of the machinery in use in Shanghai is of British construction, or else made in Japan, but about a third of it comes from America. No new machinery has been imported in the last two years, for owing to political and economic conditions no new mills have been started. Some of the cotton gins used in the interior are manufactured in China. They are of a different type from those used in America, for instance, being adapted to coarse, short-fiber cotton.

## The Staffing Problem

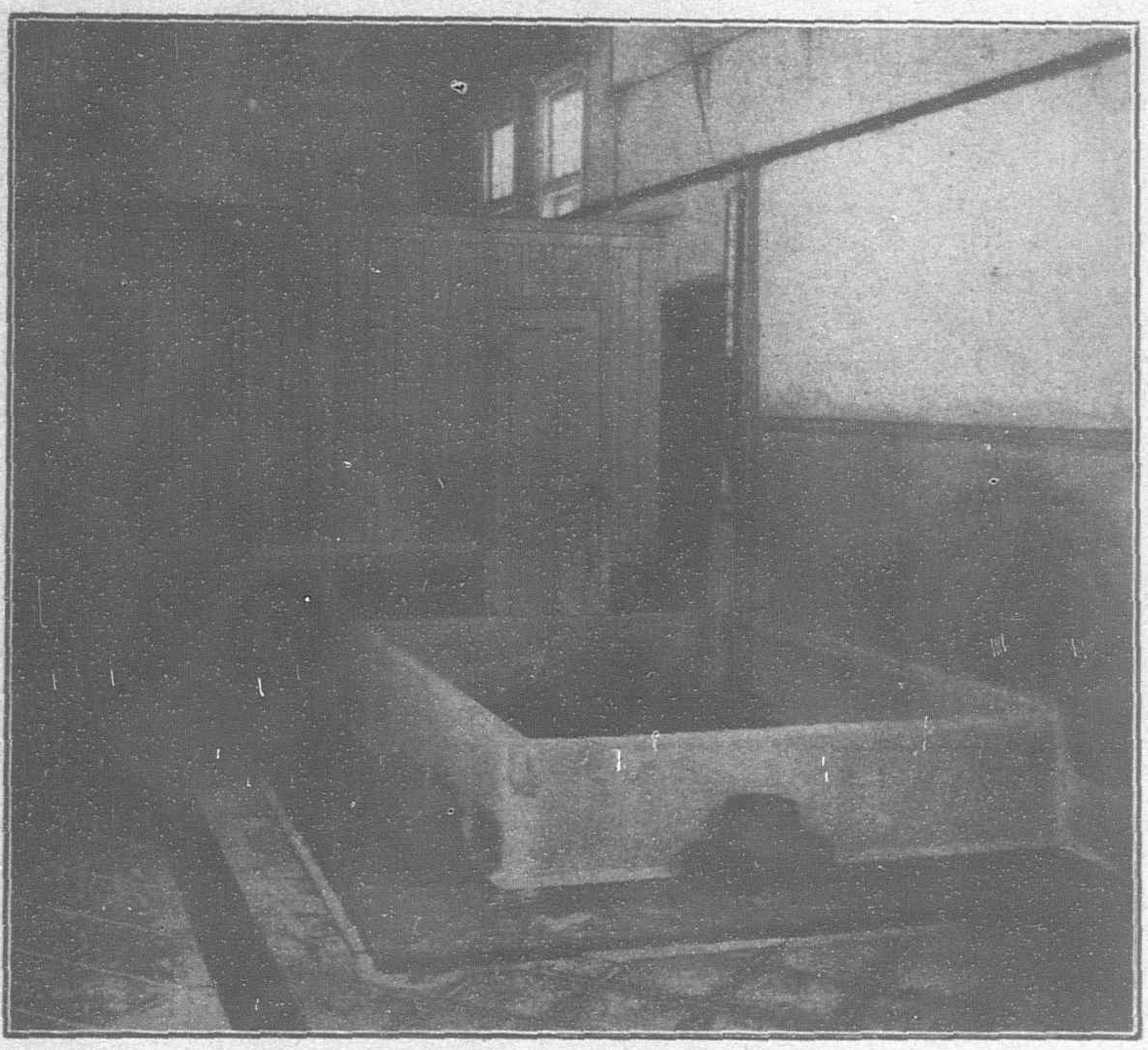
The great difficulty in British operation in China is the problem of staffing the mills. Few of the British managers or supervisors speak Chinese, and so it is necessary for Chinese foremen to speak English, at least enough to transmit orders. The Japanese are not troubled so much with this problem, for



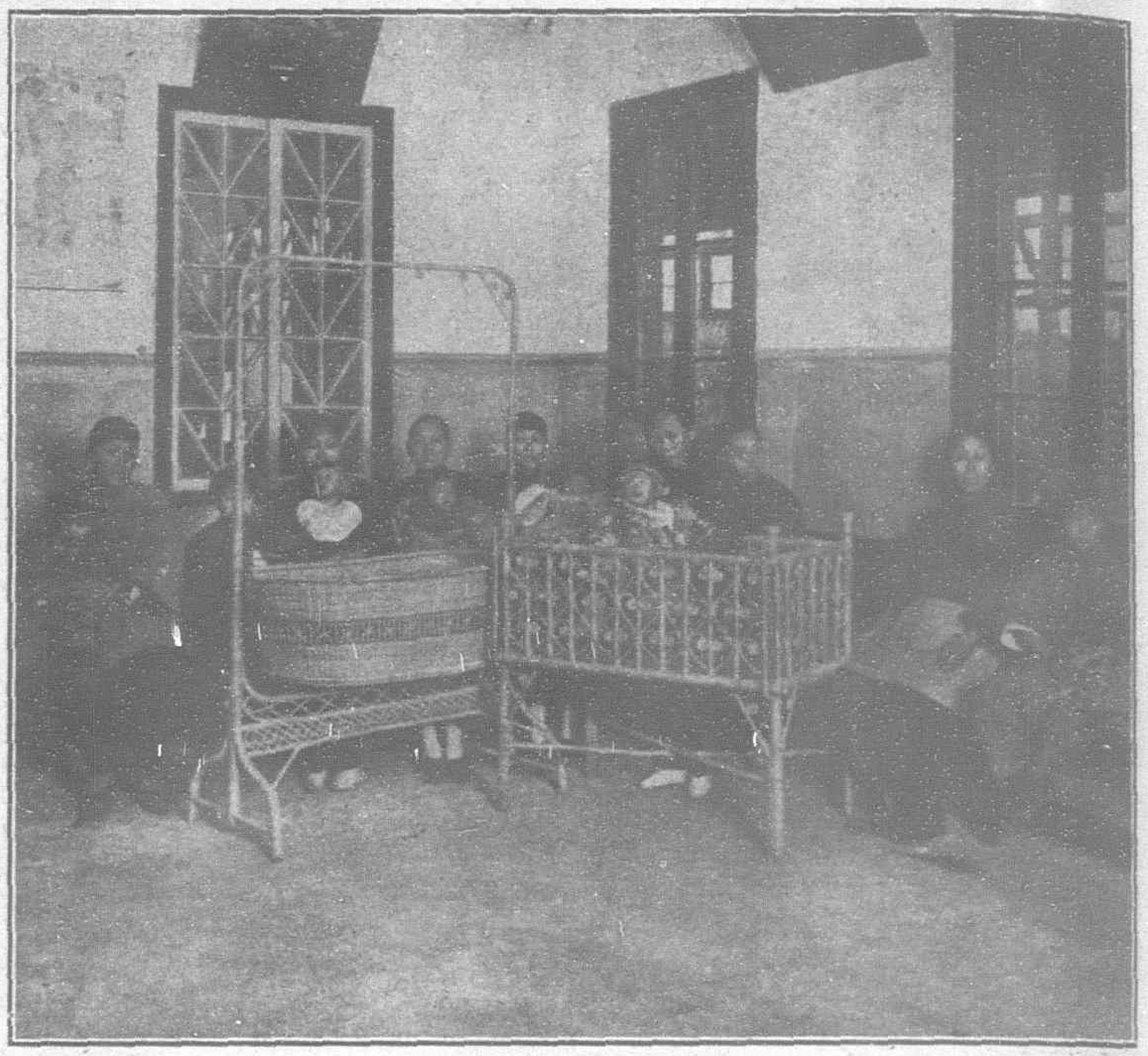
Chinese Joss Room in the Mill



Billiard Room in Employees Club House

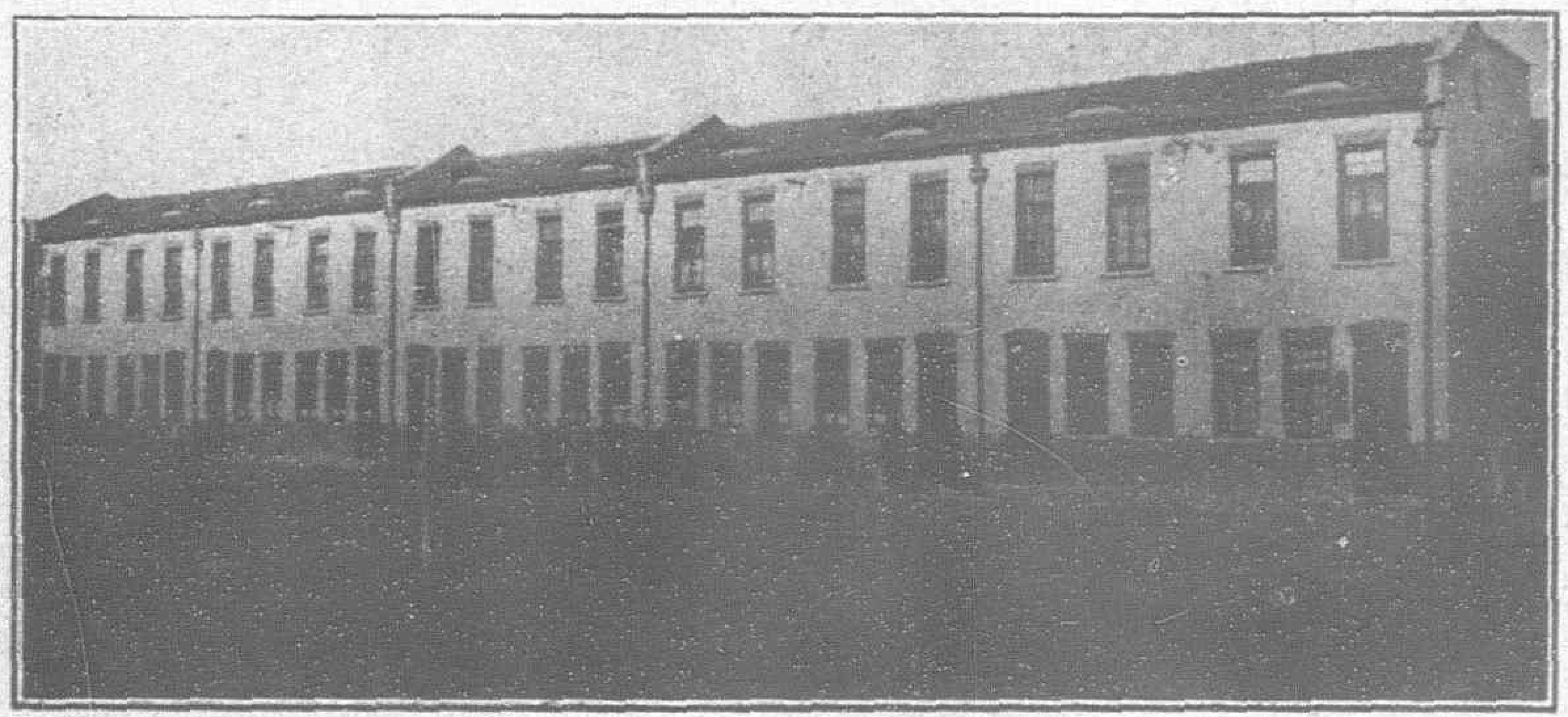


Chinese Bath Room in the Mill



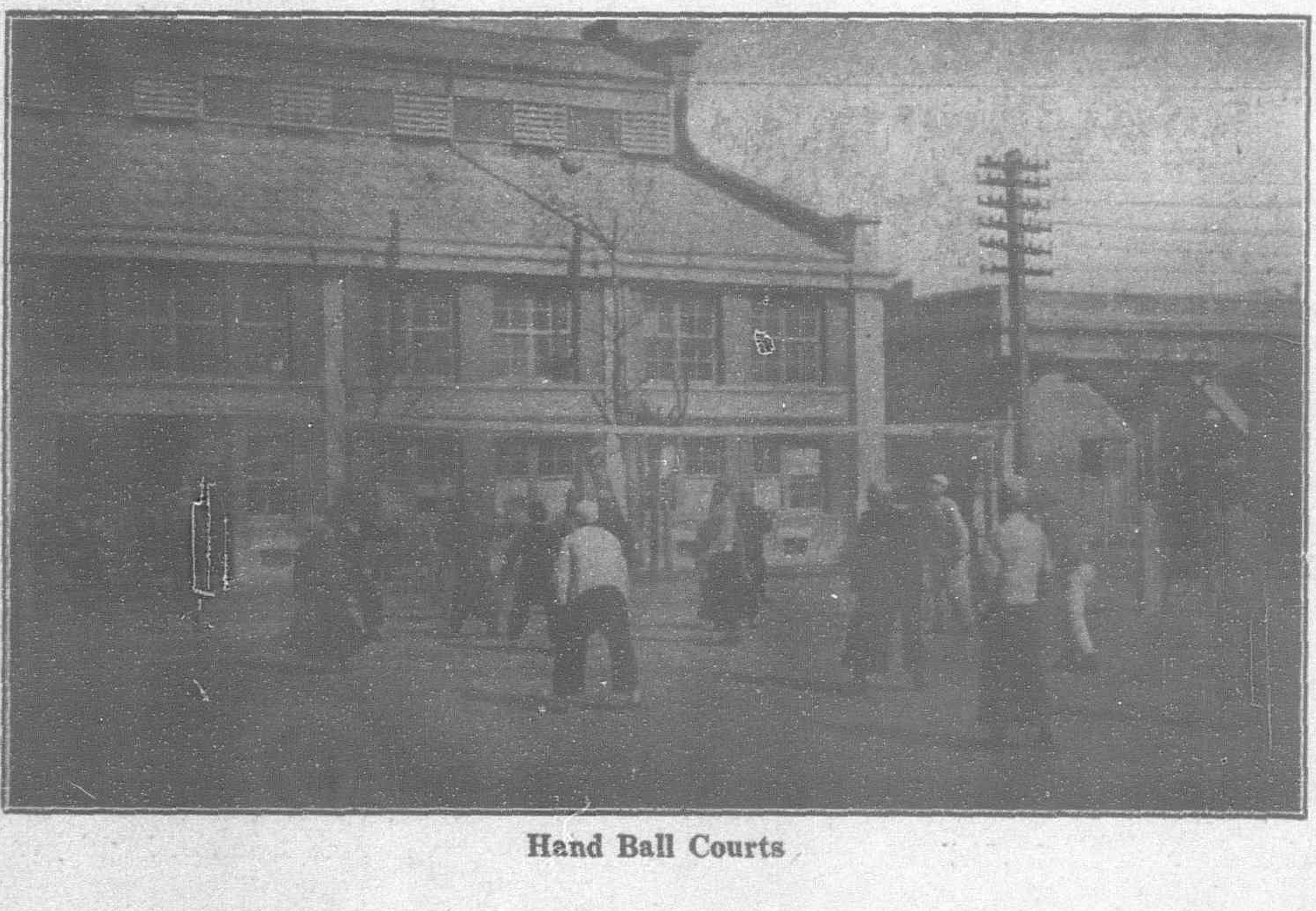
Day Nursery

they are more nearly akin to the Chinese and many of their operatives speak the Chinese language. British managements engage compradores at yearly salary figures, making them entirely responsible for staffing the mill and paying the workers. The Japanese employ their labor direct through their "No. 1 women" for female help, and through their own nationals for male labor. They succeed very well by enforcing a régime of strict discipline.



Chinese Dwellings

The female supervisors are very important, as the workers are usually bound to them, and if one is discharged for any reason her cohorts usually follow her. If any trouble starts between her and her superiors it spreads through her whole section. In the cardroom is one No. 1 woman assisted by two No. 2 women directly responsible for the flyer frames, and sometimes another No. 2 woman who supervises the draw frames. One No. 1 woman is generally responsible for 10 to 13 ring frames. The reeling room is a little different, the firm paying reelers' wages according to production, the old piece-work scheme adapted to Chinese conditions. Actual supervision in reeling rooms is left to a No. 1 and a No. 2 man with the production checked by shroffs, either Indian or Chinese.



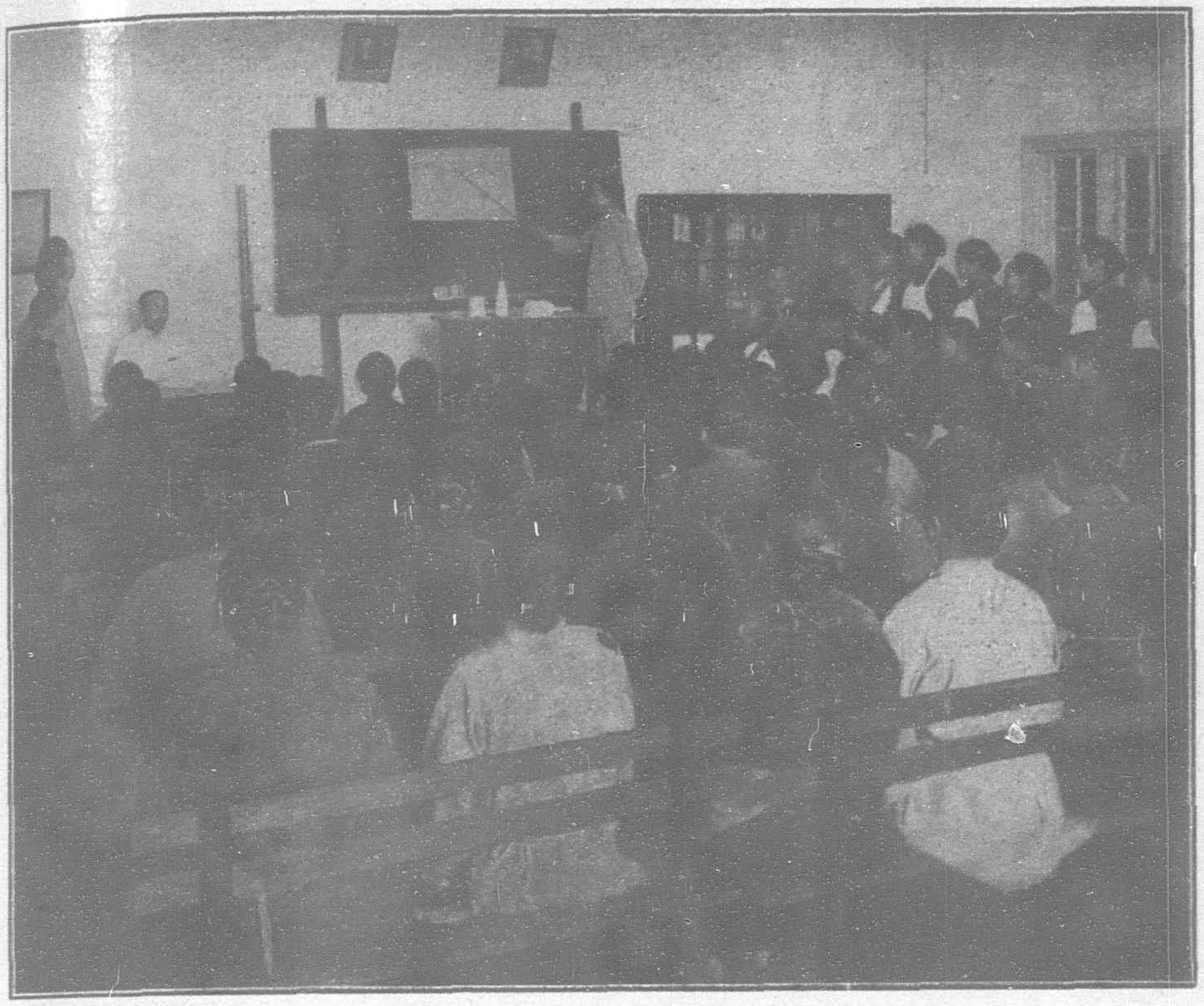
Hand Ball Courts

## Common Laborers

Coolies and workers work side by side in the mixing room, one coolie on the hopper feed bins, one on each opener and scutcher in the scutching room, and one coolie to eight cards in the card room. There is a lap carrier and two strippers for each 60 cards. The latter also prepare the cards for setting and grinding, but the actual grinding is done by the No. 2 man. On the draw frames is one woman per slubber. Sometimes a girl assists one of the women, both of them operating two slubbers. The slubbers are about 80 spindles, 10 inch lift and 350 R.P.M. Production averages about 8.1 hanks per spindle of 7.1 hanks roving. Coolies are engaged to carry bobbins and to sweep down and clean the frame ends on six slubbers and intermediates.

A woman stands by, watching each roving frame. During the doffing, a boy comes to assist her. He is supposed to do this on about seven frames There are about 160 spindles, 7 inch lift at 420 R.P.M. Production is 6.7 hanks per minute per 12 hours on 2.84 hanks roving. These particulars are generalized, applicable in most Shanghai mills. In addition to the above staff of workers are the wrapping boys and sweeping and oil coolies.

On the ring frames it is customary to have two women per frame of 404 spindles, 5 inch lift, with 1⅝ to 1¾ inch rings. The spindle speed is usually 7,500 to 8,000 R.P.M.; roller speed 130 to 200 P.R.M. of ⅞ to ¾ inch diameter. Production reaches 7.9 hanks per spindle per 12 hour shift, or an average weight of 19,000 pounds for 42,000 spindles. Reelers attend to one frame of 40 threads, either power or hand. In practise, production is higher on the hand reels than on the power reels because it takes the inefficient operators such a long time to become good at them.



Lecture Room for Chinese Mill Hands

## What They Work With

Of course most of the cotton that goes through Shanghai mills is grown right in China and brought to market from the interior, although some of it is imported from other countries. Shensi cotton is generally regarded as best. It is about $\frac{7}{8}$ inches long, and they bring it to Shanghai in well dressed and compact bales, although some of it arrives in loosely packed bales of 100 pounds or more. Tungchow cotton is regarded locally as second best. American cotton and Indian cotton are used also, in amounts regulated by the prevailing market price. The raw material is bought either from dealers or through the Chinese Cotton Exchange in Shanghai, a well-regulated institution with a buying and selling exchange floor which rivals in size and noise the New York Stock Exchange.

Cotton is bought by name, not by grade, or staple, which varies in length from $\frac{1}{16}$ to $\frac{1}{8}$ of an inch. The stuff is sold in lots of 500 to 1,000 or more piculs (one picul equals 133$\frac{1}{3}$ pounds). Samples are not usually given. Adulteration is very prevalent, and as high as 18 per cent. of moisture is sometimes found, though the standard is 8 per cent. Chinese cotton is clean and well ginned in comparison with Indian cotton, which has a large percentage of broken seeds in it.

The waste percentage up to scutching is about 10 per cent., and about 6 per cent. on the cards. It is common to find 20 per cent. loss between cotton received and the yarn delivered.

## Prices and Sources

Of course the market price of cotton varies from day to day and from season to season. On native cotton the difference between the purchase price in Shanghai and the dealer's or agent's price out in the provinces is tremendous. Shansi cotton for instance brings the farmer who raises it about $12 per picul. When it gets to Shanghai the accepted price is about $50 a picul. This is representative of price differences in most provinces, but transportation costs are of course more from the farther provinces. In the north, where much of the raw material jogs its way over mountain passes on the backs of camels, it takes sometimes six months to get from field to mill.

Imported cotton comes from Japan, America and India, most of it from America. In December, 1927, a total of 55,872 piculs of cotton came to Shanghai from these three countries; 10,469 piculs from Japan, 44,833 piculs from America and 570 piculs from India.

Much more comes from the interior of China. In the same month, 330,701 piculs was brought to Shanghai from Kiukiang, Hankow, Wuhu, Ningpo, Tientsin, Tsingtao, Nanking and Taku. Most of this was from Hankow, a total of 296,218 piculs. The places mentioned are main distributing centers.

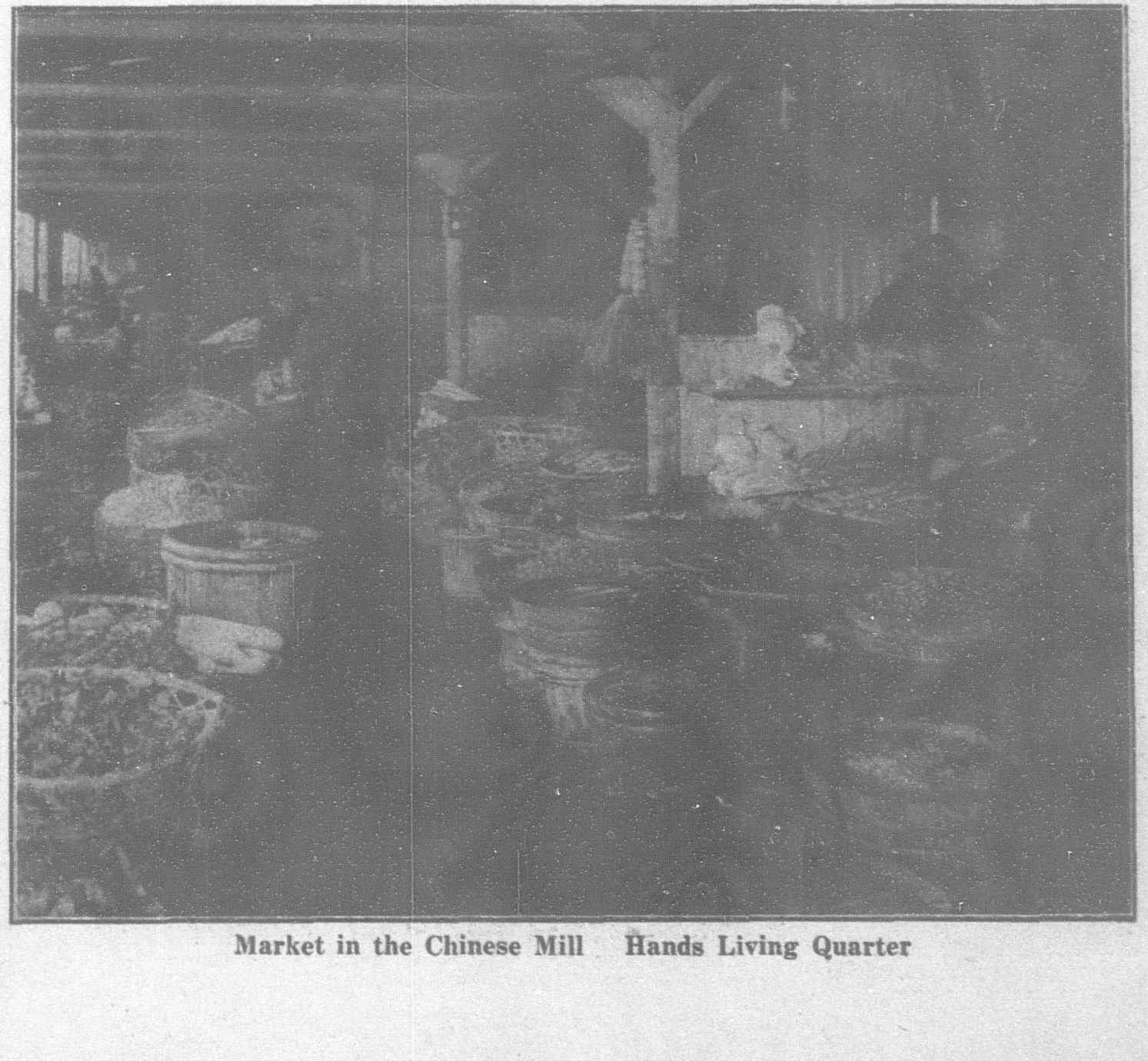
## Wages and Bonuses

Mixing, blowing and card coolies in a typical Shanghai cotton mill receive 40 cents a day plus a cost of living bonus known as rice money, amounting to 2.4 cents a day, plus an attendance bonus amounting to 6 cents. This is to insure continuity of labor. The contractor pays each person who works 13 complete shifts one day's pay extra.

A bonus is paid to all flyer tenders for hanks exceeding a certain number. A similar bonus is paid to the slubbing tenders and the draw frame tenders, but the latter amounts to about a third of that paid to the slubbing tenders. A card room tender can earn approximately 44 cents wages, plus 2.4 cents rice money, plus 9 cents for hank bonuses, and half a day's extra pay per seven shifts, amounting altogether to about 60 cents a day.

The spinning room of a 42,000 spindle mill employs 211 persons exclusive of a No. 1 man per shift. Wages come to $136.46 a shift, exclusive of rice money. It costs about 88 cents a day to run each frame exclusive of rice money or bonuses. A female spinner can earn 44 cents a day plus 2.4 cents rice money plus 6 cents attendance money, or 52.4 cents a day. Production is 1.1 pounds of 16s per 24 hours in good mills. Strength of the yarn produced is about 100 pounds for 10s, 90 pounds for 12s, 70 for 16s and 60 for 20s.

A superannuation scheme is worked out in some of the mills. When a laborer works a certain number of years he receives 8 per cent. of his annual wages in cash. An allowance is usually paid by the firm when death occurs among the staff to cover coffin and funeral expenses. This is in line with Chinese



Market in the Chinese Mill Hands Living Quarter customs and serious trouble would arise if this death money were overlooked.

The bonus scheme is not confined to staff wages. The merchant or trader who buys from the mills also must have his cumshaw or bonus. This is given not in reduction of price, but in increased weight in the bale, so that it seems to the purchaser that he is actually getting something for nothing. A 10 pound bundle of cotton never weighs 10 pounds, but always a little more, usually 3½ ounces extra in the 16s. In addition, further cumshaw is allowed to the extent of three knots of two hanks each per bundle, making it a sort of baker's dozen. This allowance weighs an additional five ounces, and the retailer is pleased at his cleverness in beating the mill out of the extra three knots.

## Production Costs and Profits

It costs the mills about Tls. 25 per picul to complete all the processing. The average price of cotton mixing is Tls. 30.5 per picul. It requires 3.5 piculs of cotton to produce a bale of three-picul yarn. Therefore, according to figures worked out by one of the leading British cotton spinners of Shanghai:

| | |
|---|---|
| Cost of cotton ... ... ... ... | Tls. 106.75 |
| Cost of spinning ... ... ... | 25 |
| Total cost of yarn ... ... | 131.75 |
| Selling price of yarn ... ... ... | 135 |
| Cost of production ... ... ... | 131.75 |
| Profit ... ... ... ... | Tls. 3.25 |

That makes a profit per pound of 1.48 cents. Actually the figure is somewhat lower to-day in the average Shanghai mill because of increased wages owing to concessions on account of strikes. The cotton mill industry has been hurt worse by strikes than any other in the city. Many mills have had to close down weeks at a time. The Nagai Wata Kaisha mills, Japanese owned and operated, suffered as much as any others, although one or two Chinese mills were forced to close down for a long time. In the month of August, 1927, there happened to be just seven big strikes in the city. Five of these were in cotton mills and four of those five were in Nagai Wata Kaisha mills.

The labor union is a new development in China, owing its existence to Russian influence. Labor unions among the cotton workers are well organized and have tremendous memberships. Their methods of going about getting better wages and working conditions run the gamut of propaganda from terrorist rule to unsound cajolery and sounder but still imperfect argument.

## Millowners Organizations

The cotton mill owners have their amalgamations too. There is the Chinese Cotton Millowners' Association and the Japanese Cotton Millowners' Association of China. With only two British firms functioning here it is hardly necessary for a separate association, but they work in conjunction with the other two, as will be explained later.

The Chinese Cotton Millowners' Association was founded 11 years ago and has a membership of about 30 representatives from the various Chinese companies. T. K. Yung of the Suin Sing Cotton Mill, vice-president of the Association, is the actual head of it. The president, H. H. Chou, is inactive. He resides in Tientsin. T. M. Chang is secretary. Offices are located in the cotton exchange on Avenue Edward VII.

When it was first founded, the association was little more than a group gathering informally to talk over business conditions. The staff totalled one man, the present secretary. Now the organization keeps a staff of nine men busy all day long, compiling statistics to be sent to members each week, gathering information to be put in the *Textile News*, a bi-weekly market paper published by the association, and in the *China Cotton Journal*, a more pretentious magazine appearing every three months. This is also published by the association. Statistics are sent to the *Inteɹintional Cotton Bulletin*, published quarterly by the International Federation of Master Cotton Spinners' and Manufacturers' Associations in Manchester, England.

## The Joint Committee

On December 5, 1927, seven Chinese, two British and seven Japanese representatives from the local cotton mills met in conference at the Union Club with C. L. Nieh in the chair and drafted a constitution for the formation of a Joint Committee of Shanghai Cotton Millowners.

Objects of this committee, as set forth in the constitution, are the protection and promotion of interests of Shanghai cotton millowners and the promotion of good relations between them. Expenses of the committee are borne by its members and the rules stipulate that a meeting shall take place at least once a month.

Although this joint committee is understood to be in no sense a financial amalgamation, behind it can be seen a realization of the need for co-operation among millowners in furtherance of the industry. It will be no doubt through some such co-operation that China's cotton industry of the future will be regulated.

Hangchow has made steps toward a *bona fide* merger that may prove to be an example for other communities. Ten weaving mills in Hangchow have formed what they call the Hangchow Weaving and Dyeing Company, which includes dye works turning out dyed yarns for the weaving mills.

The object is to further local manufacture to the point where they can produce enough home made cloth to drive out the import material which is necessary under present circumstances to supply the demand of the neighboring community. The merger also has provided employment for enough additional workers to relieve a serious labor situation. Hangchow takes in annually $18,000,000 worth of cotton cloth and only 20 to 25 per cent. of this was made in China previous to the present arrangement. The company is capitalized at $500,000, of which $250,000 is in outstanding stock in $20 shares, and the rest raised by the member companies themselves by pooling assets.

## Other Cotton Mill Centers

Although Shanghai is by far the biggest cotton mill center in China, it is by no means the only one. Plenty of small mills and factories are scattered all through the provinces as can be seen from previous reference to the 10 mills in Hangchow. Hankow has a well defined cotton manufacturing industry and there are others to the south and north, up and down the coast as well as in the interior.

Sinminhsien in Fengtien province is a cotton cloth weaving center of no mean significance. The industry there suffered a severe setback in 1915 owing to floods in Manchuria but has revived considerably in recent years owing to the advace in prices of foreign cottons. According to investigation last July by the Japanese consul in Sinminhsien there were 250 weaving mills equipped with 900 weaving machines and employing about 2,000 hands.

Part of the yarn consumed in these mills comes from either Japan or Shanghai, though the bulk is produced by the Fengtien Cotton Spinning Mill at Mukden. The price of Japanese yarn is too high, and many of the mills prefer Shanghai material.

Cloth turned out in these mills is of a dozen or more varieties, the bulk of which are sold to local cloth dealers or to exporters wholesale, although nearly all of them maintain a retail department to dispose of their own goods locally. Mill hands are of three classes, weavers, yarn spinners and apprentices. Weavers are paid on a piece work basis, the rate varying with the kind of cloth turned out. A skilled worker can turn out about a piece a day of one kind of cloth and as many as six of another cheaper kind, so his earnings daily range from $3 to $4 *Fengpiao*. This is not so much more than Shanghai millhands get as it seems, for a silver dollar is worth about $10 *Fengpiao*. The daily working period covers about 13 hours, from 5 a.m. to 7 p.m.

## The Size of the Industry

The relative size of the cotton industry in Shanghai as compared to that of all China is well indicated by comparing the number of spindles. According to the October reports of the Chinese Cotton Millowners' Association, about 3,700,000 spindles are installed in all the cotton mills of China. The latest available figures on Shanghai mills show a total of 1,888,764 spindles in city mills.

On the basis of 2.5 *tan* of cotton for each spindle in China, the total annual consumption is estimated at 9,250,000 *tan*. The *tan* is a capacity measurement, and one *tan* contains 103.5 liters. The annual output of cotton in the last three years before 1927 was 7,811,062 *tan* in 1924, 7,577,573 *tan* in 1925, and 5,680,000 in 1926. The *tan* figures on imported cotton are as follows: 1,219,284 in

1924, 1,807,450 in 1925 and 2,745,017 in 1926. On exported cotton for the same years : 1,080,019 ; 800,786 ; and 878,512. The increase in imported cotton in 1926 was owing to the scarcity of machine cotton in China, an embargo in Hankow combined with national difficulty of transport because of civil war, and partly to a bumper crop in the United States.

The following figures in tabular form show at a glance the size of the Shanghai cotton mill industry and the relative size of the cotton businesses operated by the three different nationalities :

| | CHINESE | BRITISH | JAPANESE | TOTAL |
|---|---|---|---|---|
| Workers ... | 44,934 | 16,500 | 58,113 | 119,547 |
| Spindles ... | 735,176 | 205,320 | 948,268 | 1,888,764 |
| Looms ... | 5,090 | 2,388 | 77,632 | 85,110 |
| Capital ... | $39,986,667 | $9,133,333 | $200,000,000 | $249,120,000 |

## Importance of the Japanese

It is a curious twist of circumstance that brings the Japanese into the foreground as the largest cotton yarn and piece goods manufacturers in the largest cotton center of China, where cotton is the most important product. Silk is supposed to be Japan's long suit in the textile trade. The reason for Japanese predominance in Shanghai is as obscure as any other national development in a foreign country—Greek fruit stores in America, for instance.

A few figures on Japanese influence in the Shanghai cotton industry bring into relief the importance of the industry as a whole. Those Japanese directly connected with cotton mills in the city represent 1,196 families. The population directly connected with Japanese mills totals 4,400. Of a total Japanese population in Shanghai of 25,000, nearly a quarter of them are directly connected with the cotton industry, and a large proportion of the rest are doing business of one kind or another with the mills or are supported by the mills in one way or another.

A total of 60,000 Chinese are supported by Japanese mills in Shanghai. Counting in their families brings the total up to 200,000.

## Cotton Trade in Peking

Another interesting sidelight on the cotton industry in China is the absence of cotton mills of any description in the great city of Peking, with its million and more of population.

In the absence of cotton mills, all the cotton consumed in Peking, more than 1,000,000 *catties* a year, is used for wadding articles of clothing—quilts, hats and so on. Cotton hongs have cotton balls hanging over their doors as signs. There are two varieties of raw cotton on the Peking market, the Chowhwa and the Hsienhwa. The former derives its name from the district where it is gathered, and is short and coarse. The Hsienhwa cotton is long and soft and costs more. Dealers purchase the goods from places where it is produced and pay an additional 22 cents per 100 *catties* to the Hatamen Octroi in addition to a tax on brokers' licenses at 40 cents per 100 *catties* paid through a cotton dealers' guild.

Cotton brought to Peking is generally ginned, but it has to be scutched before used for wadding with the old-fashioned scutching bow and table. One man can dress 25 *catties* a day or 30 by working overtime. The cost of scutching is three copper cents per *catty* in addition to the cost of the worker's food. There are 30 cotton hongs in Peking.

## Anti-adulteration Association

To combat the high percentage of adulteration in cotton reaching Shanghai, an organization known as the Cotton Anti-adulteration Association was organized in 1901, consisting now of ten company members, largely British and Japanese. The association showed a net profit of Taels 11,253.79 for the year ending July 31, 1927. Ten per cent. interest for the year was paid on its guarantee fund.

The association maintains a testing house and a staff of experts and charges for testing according to bulk. Compared with the previous year, this last year showed a decrease of 19 per cent. in the quantity of cotton submitted to the testing house, resulting in a reduction of profit amounting to Tls. 5,637.11. This was owing to the smaller crop of Chinese cotton and to the political and military situation, which affected communications and trading conditions generally.

Of the total amount tested, 10 per cent. was up to standard, 7 per cent. below standard, and 13 per cent. failed to pass.

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# Aluminium Manufacture in Shanghai

FORMERLY all aluminium utensils for Shanghai were imported from abroad, chiefly Germany and Japan. The German imports were of better grade, but the prices were higher and the quantity imported was less than from Japan, which supplied about 70 per cent. of the total import. Now, however, there are Chinese factories turning out aluminium utensils from plates imported from Japan, America and Germany. During the first half year of 1927, Shanghai imported from Japan 1,774 piculs of aluminium plates, slabs, wires and utensils, of which plates alone constituted 1,652 piculs, or over 93 per cent. according to Japanese statistics. The same situation is reflected by the Shanghai customs statistics, which give the following figures about aluminium plates and utensils for the years 1924-1926.

| Aluminium plates— | 1924 | 1925 | 1926 |
|---|---|---|---|
| Net imports into Shanghai | 1,641 pcls | 2,357 pcls | 4,785 pcls |
| Transhipped to other ports | 79 ,, | 46 ,, | 29 ,, |
| Total .. .. | 1,720 pcls | 2,403 pcls | 4,814 pcls |
| Valued at .. .. | 89,440 taels | 124,956 taels | 250,328 taels |
| Aluminium utensils— | | | |
| Net imports into Shanghai | 293 taels | 1,111 taels | 152 taels |
| Transshipped to other ports .. .. | 140 ,, | 8 ,, | 29 ,, |
| Total .. . | 433 taels | 1,119 taels | 181 taels |

This shows clearly that the importation of finished products has been gradually decreasing during these years, while that of raw materials is increasing. In 1925 the value of aluminium utensils imported still amounted to one per cent. that of aluminium plates, but in 1926, it was not one per mille. Transhipment of utensils to the interior also decreased, which was partly due to competition of home-made goods, although the Japanese claim that up the Yangtze Valley the market still is supplied exclusively by foreign imports.

Of the Shanghai factories that manufacture aluminium utensils, Yi Tai Hsin Kee, located at 216 Avenue Edward VII, is the largest, Hua Chang comes next and is followed by Pao Hsin. The value of aluminium plates, wires, etc., used by these factories in turning out utensils amounts to some $200,000, $150,000 and $80,000, respectively, every year. Five or six smaller factories take up about $40,000 to $50,000 worth of raw material each. The total annual demand of these factories, if they operate to the same extent as they do now, would amount to $700,000 upwards. They manufacture tea spoons, teapots, rice bowls, chopsticks, plates, wine cups, chafing dishes, rice pans, lunch baskets, alcohol lamps, hot water bottles for the bed, and soap and cigarette cases. These utensils are in general of two kinds, polished and unpolished. The former are made of Japanese plates, and are cheaper, while the latter fetch higher prices because they are made of German or American plates. The machinery used in their manufacture is either made in Shanghai or imported from Germany. Hua Chang uses German plates exclusively and Yi Tai Hsin Kee mostly Japanese.

# Babcock & Wilcox and Mitsuis Form New Boiler Firm

ONE of the most important combinations in Japan's industrial history was publicly announced recently to a gathering of Japanese engineers, professors and business men in the Tokyo Kaikan when Mr. H. E. Metcalf, of Babcock and Wilcox, Limited, revealed the detailed formation of a new company in which his firm and the Mitsui Bussan Kaisha become partners primarily for the manufacture in Japan of the Babcock and Wilcox and Stirling water tube boilers.

The new firm is to be known as the Toyo Babcock Kabushiki Kaisha. The gathering on the night of March 16, attended by many of the leading figures in Japanese engineering science and industry was regarded as showing the importance attached to this partnership between two outstanding firms, one contributing a worldwide knowledge of steam engineering and the other the advantages of the leading commercial organization in Japan.

Mr. H. E. Metcalf, who presided at the dinner, has been 21 years in Japan as representative of Babcock and Wilcox and has been mainly responsible for the success of the important negotiations now concluded. His speech dealing with the part that coal is likely to play in the industrial future of Japan was heard with close attention and carried more than temporary interest.

Mr. K. Nanjo, managing director of the Mitsui Bussan Kaisha, presided and among the guests were Baron K. Morimura, President of the Morimura Bank, Professor M. Kano, President of the Society of Mechanical Engineers Mr. K. Fujita, Chairman of the Tokyo Chamber of Commerce, Mr. M. Shibusawa, director of the Tokyo Higher Technical College, Professor J. Imaoka Chairman of the Society of Shipbuilders. Among the considerable number of foreign guests were Messrs. F. J. Sale, Kellogg of the Hongkong and Shanghai Bank, A. H. Dean, E. W. Frazar, J. R. Geary, D. H. Blake, A. W. Buckney, G. B. Slater, Ginman and others. Mr. Nanjo opened the speeches by calling upon Mr. Metcalf, who made the main speech of the evening and proposed the health of the new Company. Professor Kamo, of Tokyo Imperial University, responded.

After giving the company the greetings of Sir John Dewrance, chairman of Babcock and Wilcox, Mr. Metcalf said the new company would manufacture in Japan the Babcock and Wilcox and Stirling boilers and other steam producing specialities. "The name of the new Company is Toyo Babcock Kabushiki Kaisha, and in it has been vested all the patent rights formerly held by Babcock & Wilcox in Japan. This company also has acquired the Zemma Work at Isogo Machi Yokohama, which has been owned and operated by Babcock & Wilcox for the past 18 years, and further, to meet the growing demand for more local manufacture, 6,000 tsubo of extra land have been purchased recently, adjacent to these works on which additional boiler shops will be built" he said.

"It would be superfluous for me, an Englishman, to attempt to tell you anything, which you do not know already, concerning great influence and many-sided interests of the Japanese partner in this new organization but I would like to say one thing before proceeding further, namely, that the amalgamation of that firm with Babcock & Wilcox, Ltd., is the outcome of over 20 years unbroken business relations, and it could not have been accomplished, but for the confidence and esteem that each has had for the other, and the fact that both sides are able to contribute something that the other has not got. On the one hand there is an ever widening experience and up-to-date knowledge of steam engineering, and on the other the advantage of perhaps the most far reaching commercial administration in existence to-day. Indeed, I cannot recall another institution which is concerned principally in trade quite so all-embracing in its activities as the one that is known the world over by the familiar name of Mitsui.

"About the British partner of this amalgamation, I could, of course, say a great deal, having been 32 years in the service of that company, but I do not propose to weary you with a long account of the early history and subsequent development of Babcock & Wilcox.

"Briefly, the two American engineers named Babcock, and Wilcox, became associated in the water tube boiler development in 1867; their first patent was taken out in the same year, and it is a remarkable fact that the Babcock & Wilcox safety or sectional type of water tube boiler, as is is called, is the same to-day, in its main features, as it was so long ago. There have been many imitations of this boiler, but none of them have differed essentially from the original design.

"In 1881, the American Babcock & Wilcox Company was registered in New York, and in 1892, the export business of the parent company had increased to such an extent that it was found necessary to inaugurate a British company. This was followed in due course, by others, and to-day there are separate Babcock & & Wilcox companies in France, Germany, Spain, Holland, Italy, Canada—and now in Japan.

"Since the opening of the Japanese branch of the English Babcock & Wilcox Company, 21 years ago, the growth of the boiler business in this territory has been phenomenal. When I first came to Japan in 1906, boilers were hardly thought of as belonging to the great science of engineering; the boiler house was usually a dirty noisy place, with firemen stripped to the waist, shovelling coal into furnaces, or pulling blazing clinkers on to the boiler-room floor. Compare this with the supper-electric light and power stations of to-day!

"Those of you who have had no opportunity of visiting the more recent installations would be astonished at the change that has taken place in the last twenty years; these latest structures are built on such a magnificent scale that you instinctively raise your hat and converse in a whister as you enter them. In the turbine room you see large dome shaped receptacles, without a sound being emitted, and yet you are conscious of a tremendous commotion going on within those silent casings. In the boiler-room, the same peace and quietness prevails, for the coal comes alongside in barges and is conveyed to overhead bunkers, and then on to chain grate stokers, the ashes and clinker returning by the same route, and in the same regular and noiseless manner.

"The largest boiler entered in the Babcock & Wilcox catalogue, issued in Yokohama in January, 1907, was for evaporating 20,000 lbs. of water per hour, into steam at 180 lbs. working pressure, and the eight or ten of these boilers which were supplied to the Kure Naval Arsenal in 1908, were thought to be quite a respectable installation. To-day there are Babcock & Wilcox boilers in Japan evaporating 200,000 lbs. of water per hour, and working at a pressure of 375 lbs. per square inch.

## Electrical Development

"I can think of only one Japanese electric light and power plant of any size and importance that does not obtain its steam from Babcock & Wilcox boilers, and during the two dry seasons of the year, when the rivers become too low for normal hydraulic facilities to be maintained, it is not an exaggeration to say that these electrical stations depend very largely upon Babcock & Wilcox boilers for their motive power. It is therefore on the side of Japan's electrical development that the Babcock & Wilcox company has been most intimately associated during the past 20 years.

"The outstanding problem for the engineer is always how to reduced the cost of production and improve working conditions generally—whether it be in the manufacture of electrical units, or anything else. I well remember years ago, when we were beginning to interest our Japanese customers in the Babcock & Wilcox chain grate stocker, and were pointing out the economy and other benefits that were to be derived from the use of this stocker, as compared with the more primitive method of hand-firing, it so happened that a coal strike broke out in Australia, and large shipments of Japanese coal were being hurriedly despatched to that country. It occurred to us to write to our Australian representative with the request that he should try some of this coal on a Babcock & Wilcox stoker, and let us know the result. He did so, and on publishing the figures, the advantages were so apparent that many steam users quickly adopted this type of stocker for their own boilers, and to-day there are over 5,000 of them in general use in this country alone.

"Whenever I see any of these 5,000 Babcock & Wilcox stokers moving slowly round, and observe the almost smokeless conditions, instead of clouds of black smoke, which previously hung like a pall over the tops of the chimneys, polluting the atmosphere and adversely affecting the health of the people, besides adding to the cost of living, I feel a sense of gratitude to the factory owners and engineers of your manufacturing cities, for the confidence they placed in my firm and for the special privilege which has been ours in being of service to Japanese industry in this way.

"However, in engineering, as in everything else, we cannot stand still, so, useful though the chain grate stoker has been and still is, another even more efficient system of burning coal has since been devised. In this method, the coal is pulverized into fine powder and blown into the furnaces of boilers in the form of a spray, and it is easy to understand why it is more efficient, when I picture to those of you who are non-technical, that instead of the fire having to burn its way slowly into each piece of coal, as it does on a mechancial stoker, or when hand-firing is resorted to, it flashes into flame immediately. "Japanese engineers were not slow to investigate this latter invention, with the result that there are already four electrical stations in Japan, equipped or about to be equipped with a pulverizing plant, and others are under consideration near Tokyo and elsewhere, in which powdered coal will be used.

"A still more modern way of treating coal is known as low temperature carbonization. When this can be operated profitably and on a commercial scale, it will far outstrip in general utility, either the mechanical stoker or the employment of powdered coal for steam raising purposes. Every engineer realizes what enormous sums are lost through burning coal in a raw state, because of the valuable chemicals that are destroyed. During the last century, engineers were laughed at, because they claimed to be able to employ coal usefully for the purpose of producing power, and it will not be many years before engineers are again ridiculed for burning such a precious commodity as coal, instead of distilling it by one or another of the low temperature carbonization processes that are now being tried.

"One such system is known as the Trumble process, in which superheated steam of moderate pressure, but high temperature, is blown through an ingenious arrangement of retorts, containing the fuel to be distilled. The quality and quantity of oil which can be extracted by this method is said to be excellent, and the reveue from the gasoline obtainable, taking into account the high price of oil in this country, will I am informed, be surficient to cover the expense of carbonizing, plus the cost of the original coal.

"Another method consists of a large tower, some 60 feet high, divided into two zones of heat, and briefly, what happens is that a charge of pulverized coal lifted to the top of the tower and released in a light shower of small particles which fall gently down and are carbonized by hot gases rising from the bottom until all the volatile products have been driven out. The astonishing thing about this system, which goes by the name of McEwen-Runge process, is that complete carbonization takes place in about one minute, instead of occupying from 15 to 20 hours, as it does in a coke oven. The resultant oil is collected and refined into gasoline and a residue of semi-coke, in a hot pulverized state, is ready to be blown immediately into the boiler furnace.

"Electrical power companies with a considerable daily consumption of fuel would do well to experiment with one or other of these low temperature carbonization plants, alongside their existing boilers. At the Toyo Babcock Company's Yokohama works, we intend to erect shortly a 40-ton plant, to be followed later by one of 100 tons, both of which will be put through exhaustive tests. The results will be made known to Japanese engineers through the medium of the technical journals.

### Japan's Resources

"The average yield of coal in Japan is about 30,000,000 tons a year, every ton of which is said to be capable of producing by low temperature carbonization, 40 gallons of oil, besides 10 to 15 cwt. of coke and other by-produts, in varying proportions. Even if the entire present output of coal were to be treated by this process, the 30,000,000 barrels of oil that would be extracted from it annually would not be every much, but whatever the amount recovered, it would increase the revenue of this country, and render Japan just that much less dependent in times of great emergency, upon oil purchased from other countries, or obtained from her own diminishing natural supply. On the other hand, there are coal and shale deposits enough in Japan and her possessions, which by distillation, could make her altogether independent of foreign oil. It does not require a great stretch of the imagination to realize that the power stations of the future are going to develop into immense electro-chemical factories, manufacturing besides electricity, lubricating oils, motor spirits, fuel oil, tar, pitch, and disinfactants, etc., whose boilers and turbines will work at higher pressures and temperatures, necessitating probably a revision of our calculating tables and further discoveries in the direction of stronger and more durable materials.

"It is in the working out of practical problems of this nature, requiring the most advanced technical skill and ability and elaborate and costly experimants, that the amalgamation of Babcock & & Wilcox and Mitsui should prove of the greatest assistance to Japanese engineers.

"Gentlemen, I now ask you to join with me in toasting the new Company, and I would like to couple with it the name of Dr. Dan, also of Mr. Nanjo, and Mr. Toba well-known to you all, without whose earnest and sincere co-operation, there would have been no Mitsui-Babcock amalgamation for me to announce to-day. I also take this opportunity to pay my tribute to the Mitsui Company's engineering staffs in Tokyo, Osaka, and elsewhere. As I said at the commencement of my remarks, it is because Mitsui and Babcock & Wilcox are each able to contribute something useful that the other has not got, that the association of these two companies has lasted for over 20 years, and has culminated in this new British Japanese amalgamation, the inauguration of which it has given me much pleasure to announce to you to-day.

# A Furnace in a Wooden Box

## Steel-making by Wireless

THERE is no catch in it. There it stands, a square wooden box, so cool that you can put your hand on it, yet containing somewhere inside it, 450 pounds of molten steel. At a given moment, this wooden box tilts its lip and deposits its glowing contents in the receptacle prepared. You watch the white-hot stream, and wonder how it is done.

Briefly, the steel is melted by wireless, or at least by a high frequency alternating current which circles round the crucible and induces eddy currents in the metal to be melted. These eddy currents are of such magnitude that the metal rapidly becomes molten. The whole process, from beginning to end, takes about an hour. Except for the low humming of the electric generators from the machinery room hidden away behind the control board, there is no noise. It is all clean, orderly, efficient, simple vastly different from the old crucible furnace which it replaces.

### Heavy Labor Eliminated

In the old process, a number of clay pots or crucibles were heated up by coke or gas fires. Each pot contained about 601 bs. of steel. When the steel inside these pots was ready to be poured out or "teemed," a powerful workman stood astride the open furnace, enduring its fierce, blazing heat, and drew out the pots by means of special long tongs and his own muscular strength. Other workers single-handed lifted these pots from the ground with the tongs and poured their contents into the ingotmould. The amount of physical endurance and force required was enormous. In addition the workers had to work in great heat. All this is eliminated by this new, comparatively calm process.

### How it is Done

It is startling to think of molten steel being contained in a wooden box, but the explanation is simple. Avoiding special technicalities, which will be found in another pamphlet, the process may be described as follows.

The steel is contained in a refractory crucible, or " pot," which is surrounded externally by about an inch of heat-insulating sand. Around this, a coil, water-cooled, is wound. This coil carries a high-frequency alternating current of electricity, and without any contact between coil, pot or steel, heat is generated or " induced " in the metal inside the crucible by means of this current. As before stated, this heat is induced by electrical effects similar to those used in wireless installations. The walls of the crucible merely serve the purpose of a container, and no heat is passed from the outside of the crucible to the metal within. This is an important point, the significance of which will be explained later.

### A Special Motor Generator Needed

Before this simple but highly effective process could be made a practical proposition, a motor generator capable of supplying power to the furnace at a suitable voltage and frequency was necessary. This machine was constructed at the Siemens works of the English Electric Co., Ltd., at Stafford.

### Edgar Allen & Co., Ltd., Pioneers of this and Other Steel-making Processes

Edgar Allen & Co., Ltd., have always been ready to investigate and adopt any new process that promised to reduce manufacturing costs, increase efficiency or improve output. They were the pioneers of the Tropenas Acid process for the making of steel castings, and it was in their foundry that Monsieur Tropenas, the inventor, perfected his designs. The firm also introduced into this country a patent process for the rolling of rails made from manganese steel. They put down the first Heroult electric arc furnace to be installed in this country (late 1909) and it began working in March, 1910. Now, the same firm come forward as pioneers of this wonderful new process. Surely a record of which to be proud!

### First in the World

The furnace itself is known as the Ajax-Northrop high frequency furnace, and is *the first of its kind in the world to be used commercially for the manufacture of high quality tool steel.* The designers and suppliers of the furnace are the Electric Furnace Co., Ltd. 17 Victoria Street, London. The chairman of this Company, Mr. D. F. Campbell, made the designs for the particular Heroult type Arc furnace referred to in a previous paragraph.

### Advantages of the New Process

As pointed out, the new process supplants the old crucible process, which has persisted, with minor modifications, from the time of its inventor, Benjamin Huntsman (1745) down to the present day—a period of nearly 200 years. It eliminates hard, exacting work, and provides better and less arduous conditions for the worker. These may be called its *social* advantages.

Then one comes to its *economic* advantages. First, one may mention the much smaller space (*i.e.* extent of plant and buildings) required to produce tool steel by this process as compared with that required to produce an equal amount by the old crucible process, whether using a gas-fired or coke-fired furnace. Secondly, it is estimated that the new process will operate at a lower cost per ton of steel produced, though this assumption cannot be proved until the furnace has been running for some time.

### The Technical Advantages

The strictly technical advantages of the process—all extremely important—are: first, the purity of the steel produced by its means. As there is non-contact with fuel, the gasses given off by coke, or other disturbing factor, the steel is remarkably free from its deadliest enemies—sulphur, phosphorus, etc. Secondly, ingots of steel required to conform to a special analysis can be made very quickly. It must be pointed out, however, that the furnace is purely for melting and not for refining. Thirdly, there is a violent stirring of the metal electrically, the action being so strong that the surface of the metal in the middle of the pot is about one inch higher than it is at the sides. This ensures a very thorough mixing, so that if, for instance, a high speed steel is being made, the tungsten contained in it is evenly disseminated through the whole of the steel.

Fourthly, great homogeneity of the steel when making large ingots, such ingots having to be cast by the old crucible process from the contents of several crucibles, whereas in the new furnace, the full heat is cast from the one pot. Fifthly, the final temperature of the molten metal can be more-closely controlled, and adjusted if necessary. Lastly, this furnace can be operated intermittently, with very little loss of efficiency.

It will be realized from the foregoing notes that this process is bound to have a far-reaching effect upon the production of fine tool steels, and its inauguration at the Imperial Steel Works will at least show that Sheffield's steelmakers are still in the forefront.

# Vickers Contracts in Shanghai and Singapore

RECENT contracts placed with the Metropolitan Vickers Electrical Company include a number of important overseas orders for Turbo-alternator sets. Destinations include Shanghai, Melbourne, Singapore, Calcutta and Colombo.

The order for Shanghai is for a 20,000 kw. set with condenser for the Riverside Power Station of the Municipal Council. The new set is for operation at 3,000 r.p.m. being a duplicate of the last set installed. It is the third set of this capacity to be supplied by the Metropolitan Vickers Company for the Riverside Power Station and it will bring the plant capacity of the station to a total of over 160,000 kw. Mr. T. H. U. Aldridge, M.I.E.E., M.I. Mech. E., the well-known Engineer-in-Chief and Manager of the Municipal Undertaking, who has been responsible for its progressive development, is at present on a visit to this country.

The Singapore Power Station is of comparatively recent but rapid development. The existing plant, shown in the accompanying photograph, consists of two 5,000 kw. and one 2,000 kw. Metrovick Turbo alternator sets, and a new set of 10,000 kw. capacity has now been ordered by the Municipal Commissioners. All the sets are of the high speed type, operating at 3,000 r.p.m. and generating at 6,600 volts 50 cycles.

On behalf of the Ceylon Government the Crown Agents for the Colonies have placed orders which cover the complete equipment of a new power station which is to be built at Kolonnawa, near Colombo. The initial plant is to consist of two 3,000 kw. Turbo alternator sets designed for 3,000 r.p.m. operation, generating at 11,000 volts 50 cycles. The orders include the supply of condensing plant, switchgear, auxiliary transformers, crane and boiler plant, the latter being supplied by Messrs. Babcock and Wilcox as subcontractors.

An interesting indication of the progress which has been made and the work which is being done by British manufacturers is given by the wide range of sizes under construction. Generating plant in course of manufacture at the Metropolitan Vickers Works ranges from sets with single alternators of 55,000 k.v.a. capacity for large power stations, down to sets of 100 kw. for industrial applications.

**Eight-Cylinder Cars in Japan.**—Although the sale of British cars in Japan has never been exceptionally large, there has been, for many years past, a steady demand for the high-grade British models. Six-cylinder cars with luxurious coachwork have always found favor with the wealthy Japanese, and latterly the eight-cylinder models have attracted attention.

The Sunbeam Company were one of the earliest firms to develop the eight-cylinder car, and during the past few years have supplied their 30 h.p. and 35 h.p. models in considerable numbers. One of the principal residents of Tokyo is the owner of a 30 h.p. eight-cylinder model, and this car is well known in that city, where its imposing appearance and unusual smoothness of running constantly evokes praise for the high-grade British car.

# Engineering Notes

**J. H. Sankey & Son, Ltd.**—Have been specialising in the manufacture and sale of fireclay goods for upwards of 70 years. Their specialities include "Pyruma" Fire Cements which is the subject matter of our advertisement, "B.M." Brand Best Scotch Firebricks, the "Leolite" Super Firebrick and "Fosalsil" (Moler) Insulating "Fosalsil" (Moler)—a deposit of the ice age—comes to take a place in 20th Century building and furnace work which no other known substance can fill. Consisting mainly of diatome silica with sufficient *natural* alumina to bind it together, thus making it superior to Kieselguhr, infusorial earth and other fossil meals which require the addition of some foreign clay to hold them together. "Fosalsil" (Moler) possesses certain natural properties which without any doubt give it the distinction of being the one ideal medium for insulation requirements in modern construction.

In "Fosalsil" (Moler) we have the perfect insulator. The reason why it is better than other similar materials is that the bond (Alumina), is very small.

The bond is the material that holds the tiny cells together and the smaller the quantity the higher the insulating properties, as alumina is not an insulating material.

**China's Coal Reserves.**—A new estimate of the coal reserves of China, contained in a special report of the Geoolgical Survey of China, places the total at 217,626,000,000 tons, this being considered a conservative calculation, and being composed of anthracite (43,593,000,000 tons), bituminous coal (173,465,000,000 tons) and lignite (568,000,000 tons). The productive capacity of mines partly under British control is placed at 3,090,000 tons annually, the production of the chief coal-mines in China each year being estimated at 18,537,000, the principal mines being Fushun (Japanese) with an output of 4,900,000 tons, and Kailan (Sino-British) 4,500,000 tons. The total production of coal by mines is given as 24,547,000 tons.

The reserves of the principal provinces are as follows.—Chahar and Suiyuan, 127,115,000,000 tons; Szechuan, 19,000,000,000 tons; Yunnan, 19,000,000,000 tons; and Kweichow, 19,000,000,000, tons. The chief provinces at present producing coal are:—Chihli, 6,600,000 toss; Fengtien, 6,000,000 tons; Shantung, 2,400,000 tons; Shansi, 2,300,000 tons; Honan, 2,000,000 tons; Kiangsi, 1,300,000 tons; and Hunan and Szechuan, each with an average annual output of 1,000,000 tons. The total production for the whole country estimated by provinces is 25,700,000 tons.

**Shanghai Gas Company.**—A total of 594,546,700 cubic feet of gas was manufactured during 1927 by the Shanghai Gas Company, Limited, according to its annual report for 1927, out of 38,478 tons of coal carbonized, showing an average yield per ton of 15,450 cubic feet of gas. Of this total output, 521,561,500 cubic feet were sold, 11,731,700 cubic feet used at the company's works, and 61,253,500 cubic feet unaccounted for. The amount sold to private consumers was 502,204.40 cubic feet, an increase of 28,633,000 cubic feet over 1926, showing an increase in the use of gas for cooking, heating and industrial purposes. Owing to trade depression, the residuals from manufacture such as coke, tar, dessicated tar, tar distillate, and pitch were in less demand in 1927 than in 1926, although sulphate of ammonia always found a ready market, and the higher cost of coal and labor resulted in an increase in the cost of manufacture. The statement of accounts for the year, however, showed a total net profit of Tls. 332,940.75 as compared with Tls. 260,962.51 for 1926, an increase of Tls. 61,799.53. The chief improvements effected during the year were (1) the addition of a reinforced concrete water well and pulsometers to the plant, (2) the covering of the underground water tank with a reinforced concrete roof, (3) renewing of the sheeting to the roofs of the exhauster house and No. 2 coal godown, and (4) the laying of a new 6-in. high pressure steel main from the main plant to Dixwell Road in order to maintain the pressure of gas in the north district. The total length of new main laid was 4.05 miles while 0.51 mile of main was changed to large sizes.

**Oji Seishi K.K.**—The Oji Paper Manufacturing Co., Ltd. is planning the construction of two new power stations in the Hokkaido one on the Otarunai River at Hiragishi Mura, in Toyohira Machi, Sapporo Gun, with a rated capacity of 135 k.w., to be known as Teizankei Station; the other on the Shirai River at the same village, to be known as Shirai Station, capacity 131 k.w. Power from these new plants will be supplied to the Jujo Mill of the company where extensions are being made.

**Motor Boating in Malay.**—Constituting the fourth repeat order received for batches of three or more marine motors at a time by Messrs. Brooke & Co., Ltd. of Lowestoft from the Malay district during the past few months, a further order has been placed for six Brooke "Empire" 10-h. p. four cylinder Marine Motors, a popular little low priced British general purpose engine, suitable for a large range of boats.

Recent shipments made by this well known firm to this district have included 4-h.p. single cylinder, 5-h.p. two clyinder and 18-h.p. four cylinder models besides complete motor craft.

**Sandaken Launch.**—A new launch of the open river type measuring 25-ft by 5-ft 9-ins. has just been successfully taken over by the Tamburoney Estate Brunei, of the North Borneo Timber Co., Ltd.

It has been constructed by the Sandaken Branch of Harrisons & Crossfield Ltd. of London, and is powered by one of those popular 10-h.p. four cylinder "Empire" Marine Motors with which Messrs. J. W. Brooke & Co., Ltd. of Lowestoft are doing such big Overseas business.

As the fuel consumption of the engine is but 6-½ pints per hour at maximum speed, the running costs of the launch are exceptionally low, a good reserve power, giving besides, ample cruising speed.

**Switchgear.**—For a power scheme of the Perak River Hydro Electric Power Company in Malay the Metropolitan Vickers Company has received a contract for the whole of the outdoor switchgear for the 66,000 volt transmission system and lower voltage distribution lines. With the exception of the recent Metrovick installation of equipment for the 132,000 volt Witbank Scheme of South Africa the contract for Malay is probably the largest order for outdoor switchgear ever placed with British Manufacturers.

**Prime Movers and Generating Plant.**—Five turbo alternators larger than any single units yet undertaken by other British manufacturers are included in generating sets in course of construction by the Metropolitan-Vickers Electrical Company. The sets in which these units are being incorporated are two of 45,000 kw. for abroad, one of 41,000 kw. for the Barton Power Station of the Manchester Corporation, and two of 35,000 kw. for the Deptford West Power Station of the London Power Company. Other large sets in course of manufacture include one of 25,000 kw. for the Neasden Power Station of the Metropolitan Railway, and two 20,000 kw. sets for the new Portishead Power Station of Bristol Corporation. In addition new and repeat orders have been received for sets ranging from 10,000 kw. to 20,000 kw. for Shanghai, Calcutta, Singapore, Mexico, Melbourne and a number of home power stations. It is of interest to note that a very large majority of the sets ordered up to about 20,000 kw. capacity are for 3,000 r.p.m. operation. Probably the largest turbo alternator yet built for this speed is one of 30,770 kva. normal rating and 40,000 kva. overload capacity recently built by the Metropolitan-Vickers Company.

A 7,500 kw. turbo alternator set with unusual features of interest has been built for a generator station supplying power to collieries and iron works in Roumania. This set consists of a 3,000 r.p.m. turbine driving through reduction gear a four pole alternator of 10,700 kva. capacity at 5,500 volts 20.8 cycles. The unusual frequency is required to permit parallel operation with existing plant.

Orders for turbo alternators received during the year total to about 450,000 kva.

**Miye Godo Denki K.K.**—On account of the increased demand for electric light and power on the Island of Awaji, the Miye Godo Denki K.K. is planning to increase the capacity of the steam station there from the present capacity of 2,000 kw. to 2,000 kw. ordinary and 1,000 kw. in reserve. The additional turbo-generator unit has been purchased from the Mitsubishi Denki and is now being installed.

The company is considering a reduction in light and power rates on the island as soon as the new unit is put into operation, in order to further develop sales.

**Market in China for Electric Materials and Accessories.**—Of bright promise at the beginning of the year, the trade of China in electric materials and accessories suffered during the last six months of 1926 from the effects of the civil war and the unsettled conditions elsewhere. A preference exists in the country for oil engines instead of steam engines on account of the cost of coal and the difficulty of obtaining it. Thanks to more favorable prices during the year, Great Britain and Germany were able to compete more successfully with America. With regard to accessories the position remained much the same, with most of the electrical conduit coming from Great Britain, bells, switches, etc., from Germany and Japan, and fittings, dry cells, flashlights, etc. from America.

The total value of electric materials and accessories imported into China during 1926 was 8,900,000 taels, as compared with 6,900,000 taels in 1925 and 8,200,000 taels in 1924. The shares taken by the principal sources of supply were as follows: Japan, Hk. Tls. 3,406,608 (Hk. Tls. 2,366,913); Great Britain, Hk. Tls. 1,665,568 (Hk. Tls. 1,198,922); America, Hk. Tls. 1,422,291 (Hk. Tls. 851,387); Germany, Hk. Tls. 1,350,733 (Hk. Tls. 1,393,409). Other suppliers were Hongkong, France, Holland and Belgium. It is satisfactory to note that Great Britain's shipments advanced in value considerably.

**Nisshin S.S. Co.**—The shareholders' meeting of the Nisshin Kisen K.K., held on November 18, passed accounts which show that profit for the term ending September 30 was Y.192,000 more than the preceding period, while the dividend rate was increased from 8 per cent. to 10 per cent.

The Nisshin Kisen seems to be one of the few Japanese companies to benefit by conditions in China, as business for the first three months of the term was so poor that the company was about ready to suspend service on the Yosuko Line, while business on the Chinese Coast Service Line around Canton was also very poor after the despatch of Japanese troops to the Three Provinces District.

Business picked up remarkably in the last three months of the term as the Canton government commandeered Chinese ships while British services were boycotted. Upon this relaxing of competition the Nisshin Kisen immediately raised both passenger and freight rates by 20 per cent. and even at the increased rates, ships on the China Coast Line and the Yosuko Line were always booked full with both passengers and freight. This shows the confidence of the ordinary Chinese in the policy of the Japanese in China which has earned a great deal of respect among the various warring factions on account of the strong measures taken by this country in any case of attacks on business. This may cut down business in the interior but it makes Japanese ships the safest means of travel by water.

In addition to increased earnings from ordinary sources toward the end of the term the company received unexpected income of Y.110,000 from small charters, while the government subsidy was increased for the term by Y.72,000.

British services have resumed business from the beginning of October, and it is expected that Nisshin will have to reduce rates to the former figure for the rest of this term. Profit for the present term will therefore be less than the previous six months.

Total profit for the term ending September 30, amounted to Y.941,190, plus a surplus brought forward of Y.304,382, the total of Y.1,245,572 was distributed as follows:

| | |
|---|---|
| Legal Reserve .. .. .. .. | Y. 47,059 |
| Special Reserve .. .. .. | 100,000 |
| Dividend Equalization Reserve .. | 100,000 |
| Directors' Bonus .. .. .. | 65,800 |
| Dividend (10 per cent. a year) .. | 560,250 |
| Surplus Carried Forward .. .. | 326,463 |

**Electric Power Consumption in Osaka.**—The electric power supplied by the Osaka City Electric Bureau as of November 10 amounted to a total of 76,288 h.p. to 17,814 consumers, which is an increase of 8,827 h.p. and 2,195 consumers over the same time last year. The average increase is 12 per cent. this year, which is a considerable decrease from the average of 20 or 25 per cent. during the last several years.

According to the Osaka Electric Bureau, the cancellation of supply contracts during the last year averaged about 40 per cent. of total supply, but efforts were made to make this up by new contracts, resulting in a net increase of some 12 per cent. The cost of developing new sales under such circumstances is considerable, it is reported.

**Keihin Denryoku.**—Practically all the shares of the Keihin Denryoku are in the hands of Tokyo Dento or its officers and connections. Tokyo Dento owns 98,550 of the 99,770 old shares and 212,773 of the 275,342 new shares, while all power generated by Keihin in sold directly to Tokyo Dento.

Present equipment of Keihin includes the Nagawato Power Station of 18,000 kw. and the Oshirokawa Power Station, Automatic of 3,000 kw. Operating data on these two stations for the last term is as follows:

| | *Nagawato* | *Oshirokawa* |
|---|---|---|
| Total Hours in Operation .. | 4,263 | 530 |
| Total Power Supplied .. | 36,538,000 kwh. | 1,584,000 kwh. |
| Peak Load .. .. .. | 18,000 kw. | 3,000 kw. |
| Mean Maximum Load (?) .. | 13,740 kw. | 2,000 kw. |
| Average Power Load .. | 8,570 kw. | 2,987 kw. |
| Average Load Factor .. | 61.8 % | 99.3 % |
| Average l.f. at Station .. | 73.4 % | 99.3 % |

The power supply contract with Tokyo Dento was recently lowered from Y.80 a kw. a year to Y.78. Including rent received for the use of 5.8 miles of transmission line from Nagawato to Tokyo Dento line at Iatsushima amounting to Y.210,000 a year, the Keihin Denryoku reported total income of Y.640,000 from operating plus interest and dividends received of Y.46,000 the total revenue was Y.686,000. Expenditures totaled Y.308,000 exclusive of Y.50,000 allowed for depreciation during the term. Profit amounted to Y.378,000 or at the rate of 8 per cent. a year on paid in capital upon which a dividend of 7 per cent. a year was paid.

Keihin now has two power stations under construction, Maekawa of 2,100 kw. and Yukawa of 3,000 kw. which are to be completed by the end of the year. Work in connection with these stations will also increase the supply of water available a Nagawato. The increased power supply of 5,100 kw. from the new stations, at a load factor of 61.8 per cent. and Y.78 a kw. a year will increase revenues by Y.246,000, and a very optimistic estimate of increased power at Nagawato of 2,000 kw., the total estimated reveune will be Y.400,000. Increased expenses will be about Y.14 a kw. or Y.75,400 a net increase in revenues of Y.324,000.

The recent debenture issue of Y.5,000,000 floated by Keihin will be used for the settlement of loans amounting to Y.3,000,000 and the balance of Y.2,000,000 to cover construction costs of the two new stations. The debenture issue bears interest at 7 per cent. a saving of 1 per cent. on the interest paid on the loans redeemed, a difference of Y.30,000. The interest on the Y.2,000,000 for constuction will amount to Y.140,000 bringing the net profit increase after completing the new stations down to Y.290,000.

This increase will enable the company to pay dividends at the rate of 12 per cent. a year, according to some observers, but the company needs more depreciation allowances and it may be that the company will use a part of the increased profit for this purpose.

The report for the term ending October 31 is as follows:

(in round numbers, below thousand yen omitted)

| | | | |
|---|---|---|---|
| Profit for the term .. | Y.380,000 | Y.358,000 | (Last Term) |
| Surplus Brought Fwd. | 5,000 | 2,000 | |
| Total .. .. | 385,000 | 360,000 | |
| As follows: | | | |
| Legal Reserve .. | 19,000 | 18,000 | |
| Directors' bonus .. | 30,000 | 21,000 | |
| Dividend (7% a year) | 315,000 | 315,000 | |
| Surplus Forward .. | 21,000 | 5,000 | |

**Mitsubishi, Nagasaki.**—A single-screw 10,300-ton engine tanker, propelled by a 6ST60 (2250 b.h.p. at 110 r.p.m.) has been ordered from these licensees. No decision has been taken yet as to the power and type of the auxiliary engines.

**Mikawa Suirycku K.K.**—Merger with Tosan Dento K.K. The Mikawa Suiryoku K.K. (Mikawa Water Power Co., Ltd. with capital of Y1,000,000 has decided to absorb the Tosan Dento K.K. (Tosan Electric Light Co.) with the same amount of Capital. Both companies operate in Aichi Prefecture. An extraordinary meeting of shareholders will be held on Feb. 28 to approve this merger.

It is reported that the Mikawa Suiryoku will exchange 5 of its shares for 4 of the Tosan Dento.

**Wire Nail Mills Getting Busy Again.**—For some time past wire nail mills have been resticting production because of high price of wire rods, especially in the Hanshin district where some mills entirely suspended operation. These mills, however, are beginning to resume activity as the price on rods has fallen recently to about Y 98 to 99 per ton.

The only nail mill which continued operation in spite of this general depression was the Yasuda Wire Nail Works (Yasuda Seichojo). This company has been carrying on extensions in its mills instead of curtailing production like other mills, to increase the rated capacity from 35,000-40,000 kegs to some 50,000 kegs a month, or a total of 600,000 kegs a year. Extensions will be completed some time in March.

**The Japanese Electrical Industry.**—According to the Japanese newspaper "Asahi," the capital invested in the Japanese electrical industry is 2,906,000,000 yen and the average yield since 1918 has been 11 per cent. The electric power produced in Japan in 1924 amounted to 1,474,357 kwh for hydro-electric plants and 763,146 kwh for steam plants. The following increases were made in 1925 and 1926 :—Water power : 339,151 and 109,283 kw ; steam power : 191,487 and 66,787 kw in 1925 and 1926 respectively. The total production of electric power at the beginning of 1927 had reached 2,944,211 kw, of which 1,922,791 was for water power and 1,021,420 for steam plants. The growth in water power is greater than steam and is attributed to the gradual increase in transmission pressures and the possibilities of long distance transmission. The electrical companies in Japan number 659, and in the second half of the fiscal year 1925, 271 concerns made 8 per cent. or more, 150 less than 8 per cent. and 130 none. The remainder are companies concerned with other trading matters and do not disclose details of profits from electricity alone. The country possesses a margin of unexploited hydro-electric power amounting to four million kw, even in times of drought, and eight million kw in normal periods.

**Osaka May Obtain Electric Mergers.**—The cessation of rate competition in Tokyo following the merger of the Tokyo Electri Light Company and the Tokyo Electric Power Company is going to create a tendency to merge between the Nippon Electric Power Company and the Ujigawa Electric Power Company, both in Osaka. Competition between the Kyushu Hydro-Electric Power Company and the Kyushu Electric Trolley Company and that between the Hiroshima Electric Company and the Sanyo Hydro-Electric Power Company is also expected to cease. All these companies have long recognized the nuisance of competition and are looking for a chance to effect a compromise or merger.

The Nippon Power and the Ujigawa Power, Osaka, used to be sister organizations but their relations have become interrupted in 1925 in connection with the dispute on the rate of 50,000 k.w. of power. Their merger, however, has been regarded as a question of time. When the Tokyo Light-Tokyo Power merger plan was realized in December, the Ujigawa Power is reported to have opened secret negotiation with the Nippon Power through an influential financier of Osaka to co-operate. Though no formal negotiation is taken up, it is expected the Nippon Power authorities are willing to accept the proposal, since the latter institution is worrying over surplus power. If the co-operation is effected, these companies will be restored to their former relation. The Ujigawa Power will become an institution to supply power while the Nippon Power will be commissioned to sell and transmit it.

**Tokyo Yokohama Dentetsu K.K.**—The Tokyo Yokohama Electric Railway Co., Ltd. passed the disposition of profit for the the second half of 1927, as follows :

| | |
|---|---|
| Profit for the term | Y.157,910 |
| Deductions : | |
| Legal reserve | 8,000 |
| Bonus for Directors | 8,000 |
| Balance divisible profit | 141,910 |
| Dividends, 8 per cent p.a. | 140,699 |
| Surplus for term | 1,211 |
| Previous Surplus | 21,626 |
| Total carried forward | 22,835 |

The profit for the term was 6.7 per cent. of the paid in capital and an increase of Y.26,000 in amount but a slight decrease in the rate because of the increase of the paid in capital. However, two outstanding features are noticeable, one being the fact that the profit increase for the term was twice that in the same period 1926. This was due to the opening of the new line from Shibuya to Marukotamagawa. Another is that the company does not include interest in construction costs or revalue its land holdings which are conventional methods of the railway companies for ormamenting fiscal reports.

The profit and loss account follows :

| | |
|---|---|
| Operating Income | Y.212,892 |
| Government Subsidy | 154,683 |
| Income from land | 153,254 |
| Miscellaneous Income | 23,032 |
| Total Income | 543,862 |
| Operating Expenses | 184,992 |
| Interest on Railway Accounts | 160,562 |
| Expenditure on land | 28,529 |
| Miscellaneous Expenditure | 11,869 |
| Total Expenditure | 385,952 |
| Balance Profit | 157,910 |

Profit from operation is about Y.28,000 which is far from sufficient to cover the interest of Y.160,000. It is therefore easily understood that the greater part of the profit for the term was from land and government subsidy.

At present the government gives 5 per cent. subsidy for the Marukotamagawa-Kanagawa Line. The term of the contract of this subsidy expires before long and the company must have a renewal of the contract. The present subsidy is Y.300,000 being 5 per cent. of the construction cost of Y.6,000,000. Also the company has applied for a subsidy for the new line from Shibuya to Marukotamagawa, but it will be somewhat difficult to obtain.

The company owns land of 118,000 tsubo and at the same time operates 146,000 tsubo land jointly with Den-en Toshi K.K. and about 2,000 tsubo with Meguro-Kamata Dentetsu K.K. Of these the land under its direct control is the most promising. It was bought by the former Musashi Dentetsu (Musashi Elecric Railway) about 1912 as right of way, but it became useless due to later change of the Company's plans. The profit from this estate is estimated at some Y.30 per tsubo. The company will draw on this resource and the government subsidy until the completion of the Yokohama-Sakuragicho Line in order to maintain a dividend of 6 per cent. per annum.

The company's line now in operation is 14.8 miles from Shibuya to Kanagawa. The extension from Kanagawa to Sakuragi Cho via Yokohama Station of the Government Railway is very difficult on account of the removal of the Yokohama Station and other changes in the government plans. The section between Kanagawa and Yokohama Station, 50 chains, will not be completed before the end of May and the suction between Yokohama and Sakuragi Cho, one mile, would at least require the whole next year before it is completed.

However, on completion of this extension line, the transportation system will be materially improved and business results are expected to become better. In order to meet funds required for this construction the company will call up on the new shares at the rate of Y5 a share, a total of Y.600,000. Additional calls are expected in the future before the construction is completed.

**Nippon Power has Transmission Test.**—The Nippon Electric Power which recently was given a government sanction for power transmission from its Ryugawara station along the River Kurobe to Tsurumi and for the operation of its Tsurumi sub-station transmitted Tuesday 15,000 k.w. of power. The results were satisfactory. The company has as its sphere of supply in Tokyo suburbs only one county in Toyotama district to the amount of more than 50 h.p. The company applied to the Ministry of Communications for the right to supply more power to other Tokyo suburbs. The authorities, however, are anxious for possible competition for power supply between the company and the Tokyo Electric Light Company and it is unknown whether the application will be sanctioned or not.

**Naigai Dennetsuki K.K.**—(Naigai Electric Heater Co., Ltd.) This company was formerly known as the Osaka Denki Seizo K.K. In August, 1924, is absorbed the Naigai Dennetsuki K.K., and changed its name. It is under the control of the Shibaura Engineering Works.

Its authorized capital is Y.3,250,000, of which Y.2,800,000 is paid in (end of second-half 1927). Its principal business is making electric implements for household use, and transformers of less than 300 k.v.a. It is the only manufacturer in Japan which supplies electric heating apparatus to the Imperial Navy.

Its production has steadily increased so that to-day it is double what it was four and five years ago. Its principal customers are the Osaka City Electric Bureau, Kyoto Dento, Toho Denryoku, Hanshin Denki Tetsudo, etc. It also supplies about half the requirements of Tokyo and Northern Kyushu, yet its business results have been far from satisfactory, especially during the last few terms when losses have been reported. This condition is said to be due to intense competition (which belies what has been said before) but as a matter of fact the management of the company is far from capable.

**Nihon Suiden K.K.**—(Nihon Water-power Co., Ltd.) This company plans to unify all the electric light and power concerns in Kagoshima Prefecture. It has already effected mergers with the Minami Kyushu Denki K.K., Hanaoka Dento K.K. Sendaigawa Suiryoku Denki K.K., Takakuma Dento K.K., and the Mase Suiryoku Denki K.K., as well as the electric department of the Satsuma Industrial Co., Ltd. With these combinations it has absorbed about 80 per cent. of the companies in the prefecture.

Its present power capacity is 14,000 k.w. Its authorized capital Y.9,240.000.

It is now reported that it preparing to absorb the remaining light and power companies in the Prefecture, the Kajiki Denki K.K., the Satsunan Denki K.K., the Nishikaseda Suiden K.K., and the Hokusatsu Denki K.K. It is expected that these mergers can be completed within this calendar year.

With this combination completed the Nihon Suiden becomes one of the most important concerns in Kyushu. It has been reported that a merger contract with Kumamoto Denki has been signed, but nothing new is reported in this matter for many months.

**Railways in Japan.**—According to an investigation made by the Department of Railways, which classifies railways and tramways in Japan according to the class of motive power used, the mileage of electric and steam railways was about equal the end of 1927, while the capitalization of the electric railways was about 8 times that of the steam railways (Private railways only.)

| | *Number of companies* | *Mileage* | *Capital* |
|---|---|---|---|
| Tramways : | | | |
| Electric .. .. | 89 | 1,174 | Y.1,861,613,000 |
| Steam .. .. .. | 27 | 235 | 9,557,000 |
| Railways : | | | |
| Electric .. .. | 76 | 772 | 481,606,000 |
| Steam .. .. .. | 140 | 1,982 | 310,605,000 |
| Steam & Electric .. | 27 | 570 | 121,246,000 |
| Total : | | | |
| Electric .. .. | 165 | 1,946 | 2,343,229,000 |
| Steam .. .. .. | 167 | 2,217 | 320,162,000 |
| Steam & Electric .. | 27 | 570 | 121,246,000 |
| Grand total .. .. | 359 | 4,733 | Y.2,784,637,000 |

**Hiroshima Denki K.K.**—Steam Power Station. It is reported that the Hiroshima Denki K.K. has decided to increase its capital from Y.39,000,000 to Y.60,000,000 in order to develop its water power rights on the Fakiyama River. A Directors' meeting has decided on the construction of a Steam Power Station at No. 13 Miyahara Tori, Hiroshima City, to generate 20,000 k.w. needed to supply the increasing demand for light and power in that growing city.

**Teikoku Jinzo Kenshi K.K.**—To Buy Steel Materials. The Teikoku Jinzo Kenshi K.K. (Teikoku Rayon Co., Ltd.) is now in the market for a considerable quantity of steel materials, including round bars, squares, flats, angles, channels, sheets, etc. to be used for the extension of the company plant. The purchase has not been officially decided yet and sellers are keeping quiet, but great competition is expected before the transaction is closed.

**New Railways Licensed.**—New railways recently licensed include the following:

*Sancho Denki Tetsudo K.K.* (Sancho Electric Railway Co., Ltd.) Line: From Kurayoshi Machi, Tobaku Gun, Tottori Prefecture, to Sancho Mura in the same Gun.

*Kagoshima Nankai Tetsudo K.K.*—(Kagoshima Nankai Railway Co., Ltd. Line: From Makurazaki Machi, Kawanabe Gun, Kagoshima Prefecture, to Ibusuki Mura, Ibusuki Gun, same Prefecture.

*Oita Tetsudo K.K.*—(Oita Railway Co., Ltd.) Line: From Katsuragawa Mura, Kaho Gun, to Sasakuri Mura, Kasuya Gun, Fukuoka Prefecture.

*Tsugaru Tetsudo K.K.*—(Tsugaru Railway Co., Ltd.) Line: From Goshogawara Machi, Kita Tsugaru Gun, Aomori Prefecture, to Nakazato Mura, same Gun.

*Nogami Keiben Tetsudo K.K.*—(Nogami Linht Railway Co., Ltd.) Line: Ogawa Mura, Naka Gun, Wakayama Prefecture, to Takano Mura, Ito Gun, same Prefecture.

*Nagasaki Denki Tetsudo K.K.*—(Nagasaki Electric Railway Co., Ltd.) Line: From Isahaya Machi, Kita Korai Gun, Nagasaki Prefecture, to Ichima Machi, Nagasaki City.

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